



Washington State Alternative Public Works Methods Oversight Committee Study

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Executive Summary

RCW 39.10, enacted in 1994, authorizes several state agencies and local governments to use alternative procedures—general contractor/construction manager (GC/CM) and design-build (DB)—to award certain public works contracts. Authority to use these contracting procedures terminates on July 1, 2001. Pursuant to RCW 39.10.110, the Alternative Public Works Methods Oversight Committee “shall report to the appropriate standing committees of the legislature by December 10, 2000, concerning its findings and recommendations.” This study and its findings are presented in support of the committee’s report.

Based on our analysis of responses to comprehensive surveys, **GC/CM project participants strongly endorse the GC/CM process** across all aspects and throughout all phases of their projects.

- 75% of project participants rated GC/CM as meeting or exceeding their expectations for overall project cost, schedule, owner’s requirements, performance and quality, public value, and safety; 77% rated them as equal to or exceeding those under traditional design-bid-build (DBB).
- 86% of project participants rated GC/CM as meeting or exceeding their expectations for project communications, problem-solving, trust/candor, and meeting project goals; 88% rated them as equal to or exceeding those under DBB.

Owner/agencies reported that:

- By a 10:1 ratio, utilizing the GC/CM method resulted in schedule improvements.
- By a 4:1 ratio, utilizing the GC/CM method resulted in budget improvements.
- By a 4:1 ratio, change orders were reasonable. The average change order rate was 7.2% of total project costs.
- By a 2:1 ratio, value engineering techniques resulted in design improvements.

Scores on positive attributes of project phases (on a scale of 1 to 5 “strongly agree”) averaged:

- 4.1 on subcontract work package development.
- 4.0 on GC/CM selection process.
- 3.9 on MACC negotiations and owner’s programming.
- 3.8 preconstruction services and project management.
- 3.7 on design, construction, and commissioning/start-up.
- 3.6 on acceptance/close-out.

GC/CM contractor competitors found the selection process to be fair, with average scores of 4 on the 1-to-5 scale; 4.2 compared to DBB. GC/CM subcontractor competitors found the selection process to be fair, with average scores of 3.4; 3.4 compared to DBB.

Only seven Washington public projects have utilized the DB project delivery method; three were done by General Administration prior to the enactment of RCW 39.10.050. Although the limited data on these projects are not sufficient to draw any significant conclusion about the success or failure of DB as a delivery method, **the few DB project participants who reported endorse the process.**

Refer to the full study for details.

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1. Introduction

RCW 39.10, enacted in 1994, authorizes several state agencies and local governments to use alternative procedures—general contractor/construction manager (GC/CM) and design-build (DB)—to award certain public works contracts. Authority to use these contracting procedures terminates on July 1, 2001. Pursuant to RCW 39.10.110, the Alternative Public Works Methods Oversight Committee (APWMOC) “shall report to the appropriate standing committees of the legislature by December 10, 2000, concerning its findings and recommendations.” This study and its findings are presented in support of the committee’s report.

The vast majority of public works projects use the traditional design-bid-build (DBB) contracting method. Comparatively, DB has been used to only a limited extent in Washington. Under explicit statutory authority, port districts have used DB for over two decades to construct industrial buildings and equipment. The Department of General Administration (GA) and state universities have also used DB for a small number of projects based upon various legal interpretations of the competitive bidding statutes prior to RCW 39.10. GA used DB to construct three new state agency headquarters buildings in Olympia in the late 1980s and early 1990s. State universities have used DB to construct student housing and pre-engineered/pre-manufactured buildings.

GC/CM was first authorized in Washington in 1991. At that time, GA and the Department of Corrections (DOC) were permitted to use GC/CM on a pilot basis to construct prison facilities valued over \$10 million. Two prison facilities were constructed using GC/CM in the early 1990s: the Airway Heights Corrections Center and the expansion of the Washington Corrections Center for Women at Purdy. In 1994, the authorization to use GC/CM for prison projects was extended to June 30, 1997, and expanded to include up to two pilot projects valued between \$3 million and \$10 million.

During the 1994 legislative session, a consortium of state agencies and local governments requested that the use of GC/CM be expanded to other agencies and that DB be explicitly authorized in statute for agencies other than ports. The Legislature responded to this request by authorizing three state agencies and nine local governments to use GC/CM and DB for a limited set of projects on a pilot basis through June 30, 1997.

Based on APWMOC’s recommendations, in 1997 the Legislature by SHB 1425 (C 376 L 97) made a number of improvements to RCW 39.10:

- The authorization to use the DB and GC/CM public works contracting methods was extended to June 30, 2001. Changes were made to agency and project eligibility criteria, and the administrative and contracting procedures required under the alternative methods.
- An agency may use a public comment period in lieu of a public hearing to receive public comment on the decision to use an alternative method. The agency must hold a public hearing if it receives significant adverse comments during the public comment period, then it must hold a public hearing.
- The single-project restriction on the use of DB by GA was eliminated. A port district with a population greater than 500,000 was permitted to use the new DB procedures created in 1994 in addition to the DB procedures they have traditionally been authorized to use.
- An agency may use DB on projects valued over \$10 million where regular interaction and feedback from facilities users and operators during design is not critical to an effective design. This replaces the authorization to use DB on projects where program elements of the design are simple and do not involve functional interrelationships. Two new types of DB projects were authorized: construction of pre-engineered metal buildings or pre-fabricated modular buildings regardless of cost and construction of new student housing projects valued over \$5 million. An agency may also use DB on projects where the agency provides preliminary engineering and architectural drawings as part of the request for proposals.

- An agency may score DB proposals using a system that measures quality and technical merits on a unit price basis. An agency may also base the final selection of a DB firm on the lowest responsive bid when all firms are determined to be capable of producing plans and specifications that meet project requirements. Prospective DB firms must submit a copy of their accident prevention program as part of their proposals. An agency may consider the location of a firm when evaluating proposals.
- A prospective GC/CM firm must submit a copy of its accident prevention program as part of its proposals. An agency may base the final selection of a GC/CM firm on a weighted scoring of qualifications, experience, project proposals, and bid prices. Language was added suggesting that an agency should select a GC/CM firm early in the life of the project, and in most situations no later than the completion of schematic design.
- GC/CM firms were permitted to bid on subcontract work under the following conditions: the project is valued over \$20 million; the work is customarily performed by the company; the bid opening is managed by the agency; the GC/CM publishes its intention to bid in the bid solicitation; and the total value of the subcontract work performed by the GC/CM is less than 20 percent of the project construction cost.
- Agencies and GC/CMs may prequalify subcontractors based on a firm's performance in meeting time, budget, and specification requirements on previous projects. A bidder on a subcontract bid package valued over \$100,000 must submit, as part of the bid or within one hour after the published bid submittal time, the names of subcontractors whose subcontract amount is more than 10 percent of the bid package price and with the whom the bidder, if awarded the contract, will subcontract for performance of the work designated. The requirement that a GC/CM specify contract requirements for minority- and women-owned business participation in bid packages exceeding 10 percent of the project cost was eliminated. Instead a GC/CM must submit a plan for approval by the agency, in consultation OMWBE or the equivalent local agency, that equitably spreads women and minority enterprise opportunities to as many firms in as many bid packages as is practicable. The threshold for mandatory subcontractor bid, performance, and payment bonds was raised from \$200,000 to \$300,000.
- An authorized agency was permitted to use GC/CM and DB on demonstration projects valued between \$3 million and \$10 million. GA was authorized to use the alternative methods on up to three demonstration projects; all other agencies may use the alternative methods on one demonstration project. An agency must give weight to a proposer's experience working on projects valued between \$3 million and \$10 million when selecting a GC/CM or DB firm for a demonstration project. A city that supplies water to over 350,000 people may use the DB procedure for one water system demonstration project valued over \$10 million. If an agency does not use its demonstration project authorization, it may transfer its authority to another authorized agency.
- Representatives from the OMWBE and subcontractors were added to APWMOC. The Governor was directed to maintain a balance between public agencies and the private sector when making appointments to APWMOC. APWMOC was directed to pursue the development of a mentoring program for expansion of GC/CM and DB to other agencies. APWMOC was also authorized to conduct a review of traditional public works contracting procedures used by state agencies and municipalities.

Based on APWMOC's recommendations, this year the Legislature by HB 1070 (C 209 L 00), HB 2535 (C 185 L 00), and HB 2536 (C 194 L 00) made further improvements to RCW 39.10:

- Under **HB 1070**, four demonstration projects were authorized for school districts to award contracts for public works projects using the GC/CM procedure. Two of these projects must be in excess of \$10 million; two must be from \$5 million to \$10 million. Each project must be approved by the School District Project Review Board (SDPRB). A single school district may not be authorized to use this procedure on more than one project.
- The SDPRB was established to authorize four separate school districts to participate in these demonstration projects. The board consists of ten persons selected by APWMOC.

- A variety of factors were established for SDPRB to authorize school districts to use the GC/CM procedure, including past construction activity and an explanation of why the use of this procedure is in the public interest. SDPRB must prepare a report reviewing school district use of this procedure.
- A school district using the GC/CM procedure may not consider whether a contractor has had prior experience in the GC/CM procedure as part of its evaluation of bid proposals submitted by contractors.
- Under **HB 2535**, retainage requirements were altered for public works contracts awarded using the GC/CM procedure.
- The public body may accept subcontractor work that is completed during the first half of the time specified in the contract between the public entity and the general contractor for the general contractor to complete the project. The public body may release the portion of the overall retained funds that are associated with this accepted subcontractor work 45 days after providing notice of its acceptance.
- Claims against the retained funds after this 45-day period are not valid.
- Under **HB 2536**, the ability of a general contractor, or its subsidiaries, to perform subcontract work on a project awarded using the GC/CM procedure was expanded as follows: (1) the general contractor may perform subcontract work on project of any value, rather than only on projects with a value of over \$20 million; and (2) the maximum amount of subcontract work that the general contractor may perform was increased from 20% to 30% of the negotiated MACC.
- Factors that a public body's evaluation committee may use to evaluate initial proposals submitted by general contractors under the GC/CM procedure were expanded to include the scope of work that the GC/CM proposes to self-perform and its ability to perform the work.

As far as can be ascertained from the data, 17 GC/CM projects (38%) in this study were commenced under the pre-1997 statute and 27 (62%) under the 1997 version; 6 DB projects (94%) were pre-1997 and 1 (6%) post-1997.

2. Overview of the Study

2.1 Research Methods

The objective of this study was to collect data on Washington State projects that utilized alternative project delivery methods currently allowed by RCW 39.10 and to provide analysis to APWMOC to assist the committee in evaluating the use of such alternatives.

This study used a structured survey to collect project specific data from projects identified by various state agencies that utilized alternative deliver methods. The surveys are broken into two major types of data categories: subjective data from project participants and objective project data.

2.1.1 Subjective Data

Subjective data was collected from surveys designed for three different types of project participants. The first survey was the project team survey that asked the various team participants to evaluate the performance of the project and to compare the delivery method used to the traditional method. The team participants included the owner/agency representative, the architect/engineer, the contractor, consultants, and subcontractors. The survey asked the team to rate the project in the following areas that applied to the project delivery method used:

- Project and Team Performance
- Owner/Facilities Management and Programming
- Design
- Selection Process and Negotiations
- Preconstruction Services
- Project Management
- Subcontractor Workpackage Development
- Construction
- Commissioning/Start-up
- Acceptance/Closeout

The second and third subjective surveys asked non-successful contractors and subcontractors to comment on the process of contractor and subcontractor selection, focusing on the fairness of the processes.

A fourth survey was designed to collect subjective data on the uses of GC/CM and DB delivery methods from members of various professional organizations whose members design and build State projects. Due to the limited survey response by these organizations, they are not included in this report.

2.1.2 Objective Data

One survey, designed to be completed by the owner/agency's project representative, asked for project data and performance data in the following areas:

- Schedule
- Cost
- Changes
- Selection Process
- Consultants/Subcontract Workpackages

- Safety
- Quality
- MWBE

Data collection included as-planned vs. as-built and contract vs. final cost. Changes and claims were evaluated as percentages of total project costs.

2.1.3 Survey Design

The subjective survey was designed in sections asking the evaluator to respond to a project evaluation statement or a statement comparing the alternative delivery method used with the traditional delivery method. The response was recorded by utilizing the Likert scale method (1 = strongly disagree, 2 = disagree, 3 = neutral/no difference, 4 = agree, 5 = strongly agree). Also, an evaluator could choose N/A = not applicable or not involved. All the surveys allowed space for additional subjective and objective comments by the evaluator.

2.1.4 Data Collection

State agencies identified projects that were complete or under construction that utilized alternative delivery methods. They also identified the list of evaluators for all three subjective surveys. Mailing of the surveys were handled by the staff of APWMOC or by the agency itself. The researchers were not involved with the identification of project evaluators or the mailing of surveys.

All surveys were returned directly to the independent researcher from the Construction Management Program at Washington State University. All projects and individual evaluators were coded with a unique identifier to protect the anonymity of the evaluators and its agency or firm. If multiple evaluators are from one firm they are grouped into that firm's identifier. All the owner/agency responses are grouped together. This breakdown of identifiers is not available to APWMOC, State agencies, or individual evaluators.

2.2 Response to the Study

In May 2000, APWMOC surveys were sent out to agencies, architects/engineers, contractors, subcontractors, and consultants involved with the targeted 56 projects to be studied. A total of 238 surveys were returned:

GC/CM surveys: 217 returned out of an estimated 2107* for a 10% return rate.

DB surveys: 21 returned out of an estimated 294* for a 7% return rate.

The GC/CM return rate appears to be low, but the overall response is affected by a very low response from the subcontractor community. Subcontractors represent 74% of the surveys sent out (1568 surveys), but only a 3% return rate. The return rate for the agencies and GC/CM contractors is much higher at 65%. Due to such a low return rate, individual breakout by subcontractors will not be analyzed in this study, but their overall response is included in the total team analysis.

The DB project response total is extremely low; only seven public projects have utilized this method of delivery in Washington. In addition, three of those were GA projects performed prior to the statute. The researchers feel that the limited data on these projects are not sufficient to make any statistical measurement of the success or failure of the use of DB as a delivery method. This report provides a brief synopsis only on the overall response to the use of DB.

2.2.1 Response by Survey Types

The following is a breakout of the response to the survey by survey types and a table that illustrates the breakout of the response for GC/CM projects.

Agency Project Information Survey

GC/CM: 33 returned out of a possible 49 for a 67% return rate.

DB: 3 returned out of a possible 7 for a 43% return rate.

Team Survey

Agency/Owners

GC/CM: 32 returned out of a possible 49 for a 65% return rate.

DB: 2 returned out of a possible 7 for a 29% return rate.

Contractors

GC/CM: 32 returned out of a possible 49 for a 65% return rate.

DB: 2 returned out of a possible 7 for a 29% return rate.

Architect/Engineers

GC/CM: 13 returned out of a possible 49 for a 27% return rate.

DB: Not applicable; responses included with contractors.

Subcontractors

GC/CM: 19 returned out of a possible 392* for a 5% return rate.

DB: None returned out of a possible 56* for a 0% return rate.

Consultants

GC/CM: 6 returned out of a possible 98* for a 6% return rate.

DB: 6 returned out of a possible 14* for a 43% return rate.

Contractor Competitor Survey

GC/CM: 52 returned out of a possible 245* for a 21% return rate.

DB: 4 returned out of a possible 28* for a 14% return rate.

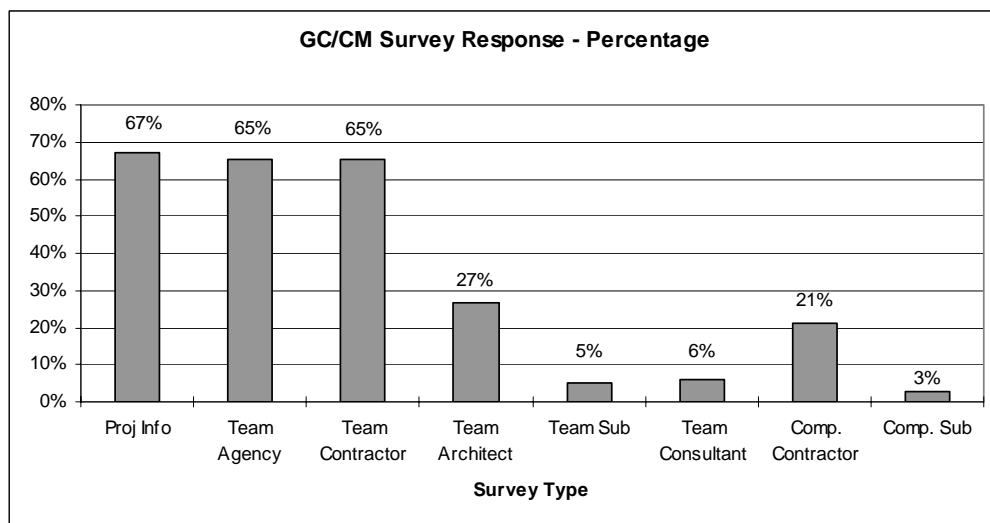
Subcontractor Competitor Survey

GC/CM: 30 returned out of a possible 1176* for a 3% return rate.

DB: 4 returned out of a possible 168* for a 2% return rate.

* Note that these actual counts are not available to the researchers.

GC/CM Survey Type Response Percentage

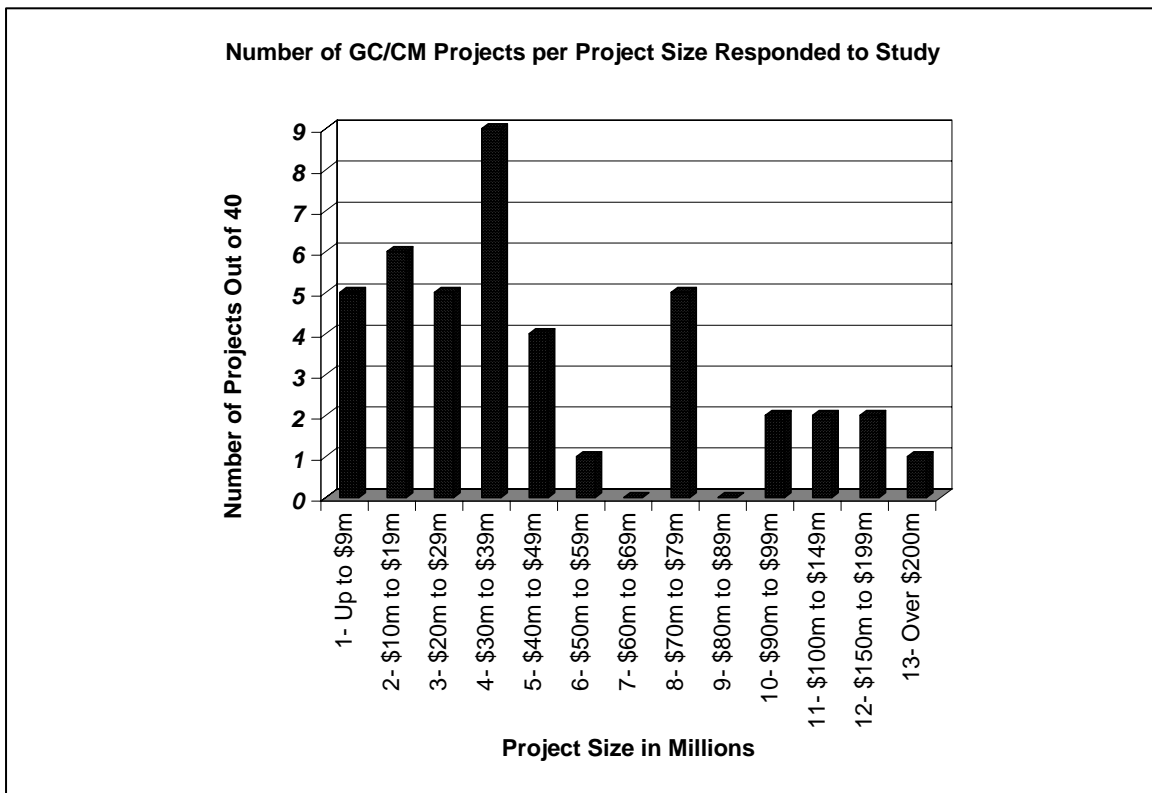


2.2.2 Projects Studied

Ten state agencies identified a total of 56 projects that have utilized alternative delivery methods. Objective project data was provided by the agencies on 34 of the projects. Team, contractor competitor, and subcontractor competitor surveys provided subjective data on 51 projects. Total surveys returned per project ranged from as low as one to as high as ten. Responses to projects per agency ranged from 1 to 16; 61% of the surveys represented projects from GA and UW.

Project sizes in the study range from \$5.5 million to \$517 million; 83% of the projects are under \$80 million. Building types vary and include office buildings, treatment plants, correctional facilities, a sports complex, parking garages, higher education facilities, utility plants, county and city halls, hospitals, convention centers, police stations, a symphony hall, and libraries. Of the surveys returned, 59% were on correctional and educational facilities. A graph of GC/CM projects by size follows.

GC/CM Projects by Size



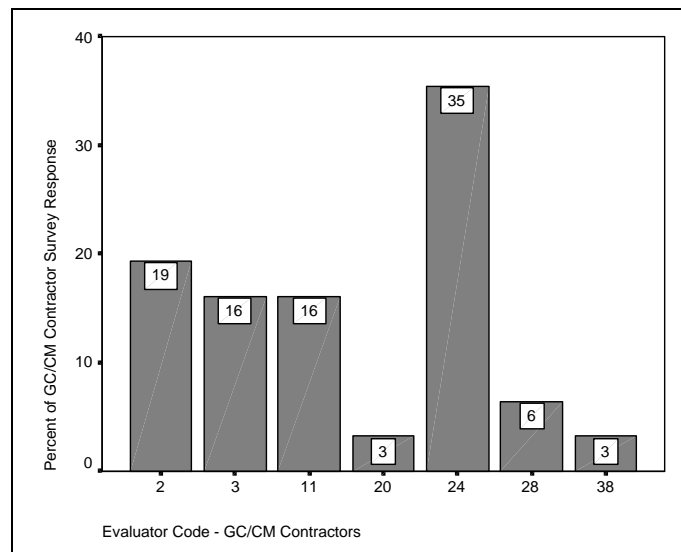
Of the 51 projects studied, 22 reported that they were complete. However, only 38% of the responses were on projects that were completed at the time of the survey. Out of the 51 projects studied, 28 (57%) were done after the significant 1997 legislative changes to RCW 39.10.060.

2.2.3 Response by Evaluator/Firm

Since one evaluator may be involved in several projects, it is important to look at the response rate by firm. Not including the agencies themselves, 41 different firms responded to the survey. Appendix A provides a table breaking out the response rate by evaluator/firm for the GC/CM projects in this study.

Contractors: Of 49 GC/CM projects studied, contractors returned 32 team project surveys for a return rate of 65%. All this work was performed by seven different contractors, with one contractor representing 35% of the responses. A graph of the response rate for contractors responding to the GC/CM Team Survey follows.

Response Rate of Contractors Responding to GC/CM Team Survey



Note: Number under bar is the individual evaluator/firm identification code.

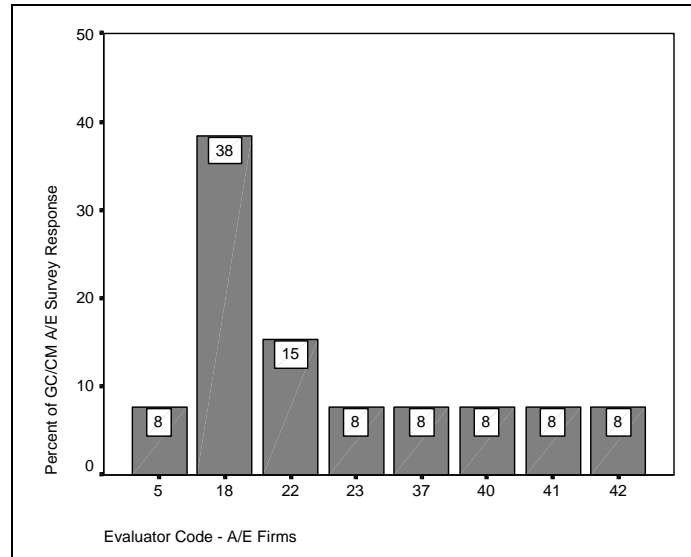
GC/CM Competitors: Of 49 GC/CM projects studied, 8 contractors that competed for GC/CM projects returned 52 contractor competitor surveys for a return rate of 21%. The return rate is based on an estimate that a minimum of 5 contractors typically submit proposals for a project. The response represents 35 projects, with one contractor representing 35% of the responses. Of the 8 firms that returned GCCM contractor competitor surveys, 7 of them were successful on other projects.

Subcontractors: Of 49 GC/CM projects studied, subcontractors returned 19 team project surveys for a return rate of 5%. The return rate is based on an estimate that a minimum of 8 subcontractors are typically involved on one project. The response represents 10 different contractors, with 2 representing 42% of the responses. The surveys represent 15 projects. Due to such a low return rate, individual breakout by subcontractors will not be analyzed in this study, but their overall response is included in the total team analysis.

GC/CM Subcontractor Competitors: Of 49 GC/CM projects studied, subcontractors that competed for GC/CM projects returned 30 subcontractor competitor surveys for a return rate of 3%. The return rate is based on an estimate that a minimum of 8 work packages are typically involved on one project with a minimum of 3 bids per package. The response represents 16 different contractors, with 2 representing 34% of the responses. Seven of the 16 contractors were also successful subs on other projects, and two of them competing as subs were also the successful GC/CM contractor on the project. The surveys returned represented 14 projects.

Architects/Engineers: Of 49 GC/CM projects studied, design professionals returned 13 team project surveys for a return rate of 27%. This work was performed by 8 different design firms, with one firm representing 38% of the responses. A graph of the response rate for design professionals responding to GC/CM Team Survey follows.

Response Rate of Architect/ Engineers Responding to GC/CM Team Survey

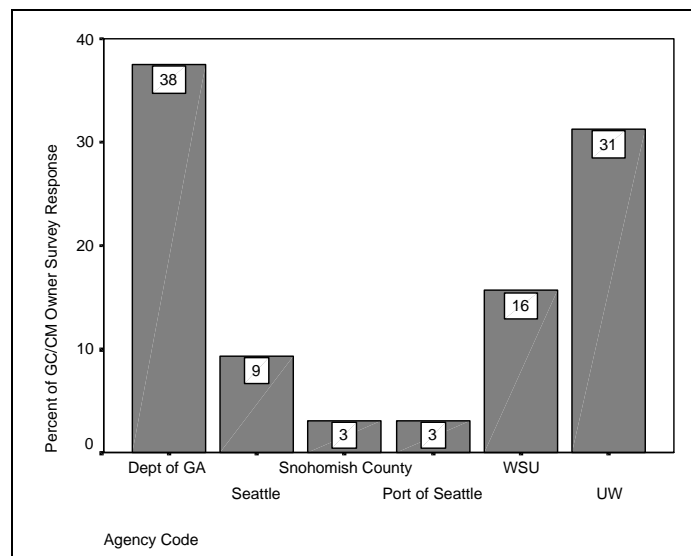


Note: Number under bar is the individual evaluator/firm identification code.

Consultants: Of 49 GC/CM projects studied, professional consultants returned 6 team project surveys for a return rate of 6%. The return rate is based on an estimate that a minimum of two professional consultants are typically involved on one project. Due to such a low return rate, individual breakout by consultants will not be analyzed in this study, but their overall response is included in the total team analysis.

Agency/Owners: Of 49 GC/CM projects studied, the owners returned 32 team project surveys for a return rate of 65%. GA represents 38% of the projects; UW 31%. A graph of the response rate for owners responding to GC/CM Team Survey follows.

Response Rate of Owners Responding to GC/CM Team Survey



3. Summary of Findings

The summary of the findings are broken into two sections by alternative delivery method type. Various methods of displaying the data is used including graphs and tables. Data is reported using standard statistical reporting methods such as the mean (average response), median (the response in the middle of a set of responses), and standard deviation (measure of dispersion from the mean). Also reported is the percentage of response which is helpful in evaluating negative and positive responses. Due to rounding, the totals may not agree to the sum of various accounts. Such variations are few and insignificant.

3.1 General Contractor/Construction Manager

This section reports the results of the surveys on GC/CM projects. This section breaks the results into four sub-sections based on the type of survey:

- GC/CM Team Evaluations
- Unsuccessful GC/CM Contractor Evaluations
- Unsuccessful Subcontractor Evaluations
- GC/CM Project Performance Data

Comments from the above surveys are displayed in Appendix J. Written comments only reflect those of the evaluators who chose to submit comments, and sometimes they do not reflect the mean response of the group. Caution needs to be taken in using these comments. The statistical results of the survey should be used in making any evaluation.

3.1.1 GC/CM Team Evaluations

The following reports the subjective data obtained from the GC/CM Team Surveys. The project team survey asked the various team participants to evaluate the performance of the project and to compare the delivery method used to the traditional DBB delivery method. The team participants include the owner/agency representative, the architect/engineer, the contractor, consultants, and subcontractors. The survey asked the team to evaluate the project in the following areas:

- Project Performance
- Team Performance
- Owner/Facilities Management and Programming
- Design
- Selection Process and Negotiations
- Preconstruction Services
- Project Management
- Subcontractor Workpackage Development
- Construction
- Commissioning and Start-up
- Acceptance and Closeout

In addition to evaluating the performance of the project, several questions in each section asked the project team member to compare the project to a similar DBB project. When asked if the evaluator had worked on a DBB project for a Washington State agency, the response rate of yes is 58% for Owners, 66% for Contractors, and 50% for Architects/Engineers.

The results are first reported as total response for all participants. In addition, the response rates for the owner, architect/engineer, and contractor are reported. Caution must be exercised in utilizing this data since the evaluators may not have been evaluating the same project and the survey project response rate varies among evaluators.

Project Performance

Project team participants were asked to evaluate the overall project performance on a scale of 1 to 10. A response of 1 indicates that the project did not meet the evaluator's expectations, 10 that it exceeded expectations, and 5.5 that it met expectations. An example of exceeding project expectations would be higher quality, lower cost, and a faster schedule. The following are the performance attributes that were evaluated:

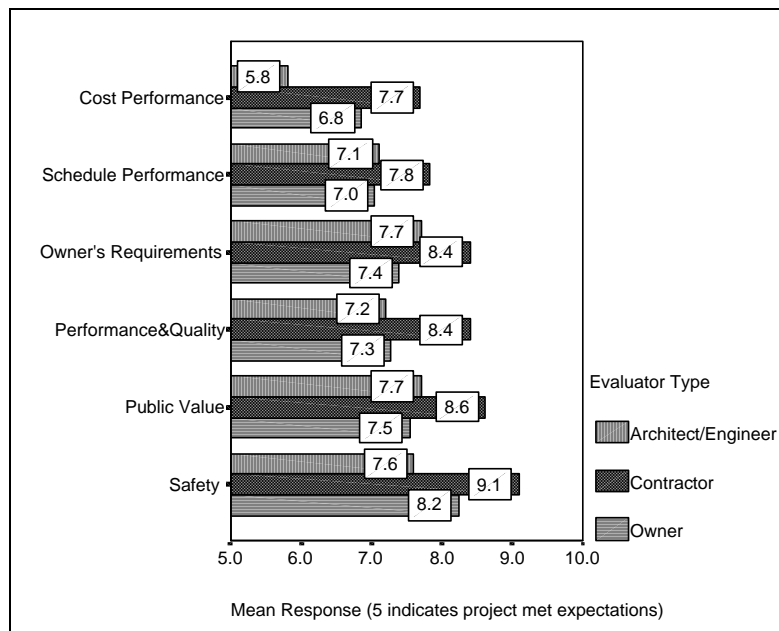
- Project Cost
- Project Schedule
- Meeting Owner's Project Requirements
- Project Performance and Quality
- Public Project Value
- Project Safety

The mean of all the attributes is 7.16, and all the attributes are at least 1.37 points above 5 (meeting expectations). The highest-rated attribute is safety with a mean of 7.98; the lowest is cost with a mean of 6.37. The table below provides descriptive statistics for all attributes.

GC/CM Team Survey: Project Performance

Project Performance																	
On a scale of 1 to 10 rate this project on the following performance attributes where 10 represents the project exceeded performance expectations (high quality, lower cost growth, less schedule growth).																	
	Count	Mean	Median	SD	Response Percentage										Total % 6 or Better		
					Did Not Meet					Met						Exceeded	
					1	2	3	4	5	6	7	8	9	10			
3.1 Cost	62	6.37	7	2.53	4.3%	7.6%	4.3%	6.5%	13.0%	7.6%	13.0%	19.6%	19.6%	4.3%	64.1%		
3.2 Schedule	93	6.63	7	2.32	2.2%	3.2%	6.5%	7.5%	14.0%	8.6%	11.8%	21.5%	18.3%	6.5%	66.7%		
3.3 Owner's Requirements	92	7.28	8	1.86	0.0%	1.1%	2.2%	5.4%	14.1%	6.5%	13.0%	27.2%	25.0%	5.4%	77.1%		
3.4 Performance & Quality	88	7.14	8	1.98	0.0%	2.3%	5.7%	3.4%	10.2%	11.4%	9.1%	29.5%	25.0%	3.4%	78.4%		
3.5 Public Value	90	7.53	8	1.9	1.1%	0.0%	1.1%	5.6%	13.3%	5.6%	6.7%	25.6%	35.6%	5.6%	79.1%		
3.6 Safety	84	7.98	8	1.74	0.0%	0.0%	2.4%	1.2%	8.3%	7.1%	11.9%	22.6%	27.4%	19.0%	88.0%		

The mean performance evaluation by evaluator type is displayed in the graph below.



The project performance attributes are higher on all post-1997 projects, with cost performance and schedule performance showing a significantly higher mean rating for those projects. The table below provides a comparison for all the attributes.

	Pre/Post 1997 Law	
	Pre	Post
	Mean	Mean
Cost Performance	5.47	7.00
Schedule Performance	5.90	7.17
Owner's Requirements	7.00	7.49
Performance & Quality	6.72	7.47
Public Value	7.34	7.67
Safety	7.64	8.27

Projects in design or construction were rated higher in cost and schedule performance than those that were complete, but completed projects scored higher in the other four attributes. The table below provides a comparison for all the attributes.

	Is Project Complete?	
	No	Yes
	Mean	Mean
Cost Performance	6.42	6.30
Schedule Performance	6.80	6.39
Owner's Requirements	7.11	7.53
Performance & Quality	7.00	7.32
Public Value	7.34	7.81
Safety	7.78	8.21

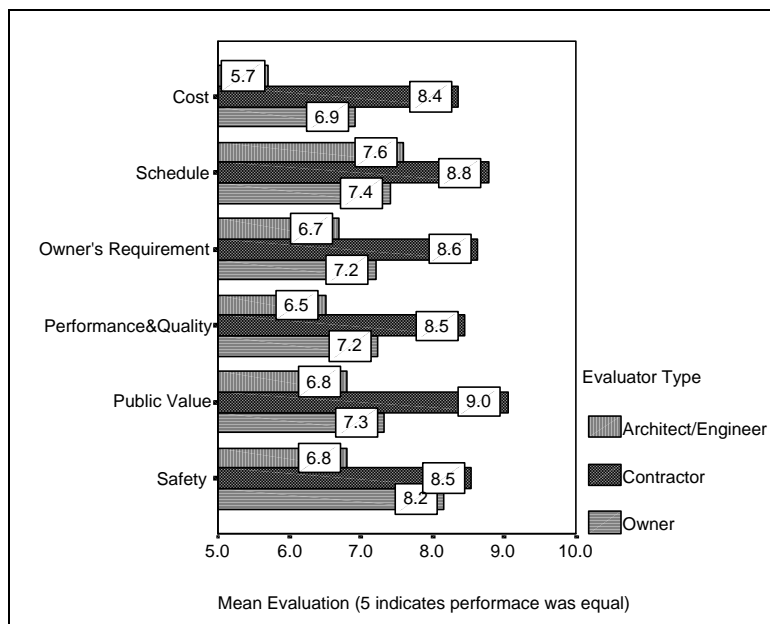
The six project performance attributes were compared by the evaluator to similar DBB projects on the same scale of 1 to 10. A 10 indicates that the project evaluated exceeded the performance of a similar DBB project and a 1 worse than a similar DBB project. A 5 would rate the project equal to the performance of a similar DBB project.

The overall evaluation is a mean of 7.34, and all the attributes are at least 1.9 points above 5 (performance equal to DBB). The highest attribute is safety with a mean of 7.66; the lowest is cost with a mean of 6.90. The table below provides descriptive statistics for all attributes.

GC/CM Team Survey: GC/CM Comparison to DBB Project Performance

GC/CM Comparison to DBB Projects Performance															
On a scale of 1 to 10 compare this GC/CM project to similar DBB projects for each of the following performance attributes, where 10 means that performance on this GC/CM project exceeded that of a similar DBB project. (10 = GC/CM project experienced higher quality, lower cost growth, less schedule growth when compared to a DBB project)															
	Count	Mean	Median	SD	Response Percentage										
					GC/CM Performance Was Less Than DBB				GC/CM Performance Was Equal To DBB				GC/CM Performance Exceeded DBB		Total % 6 or Better
					1	2	3	4	5	6	7	8	9	10	
3.7 Cost	79	6.90	8	2.25	1.3%	3.8%	2.5%	10.1%	12.7%	6.3%	8.9%	27.8%	19.0%	7.6%	69.6%
3.8 Schedule	78	7.40	8	2.15	2.6%	2.6%	1.3%	1.3%	14.1%	2.6%	15.4%	24.4%	24.4%	11.5%	78.3%
3.9 Owner's Requirements	77	7.35	8	1.98	0.0%	1.3%	2.6%	1.3%	20.8%	6.5%	11.7%	19.5%	24.7%	11.7%	74.1%
3.10 Performance & Quality	75	7.25	8	1.99	0.0%	4.0%	2.7%	2.7%	10.7%	8.0%	16.0%	24.0%	26.7%	5.3%	80.0%
3.11 Public Value	78	7.49	8	2.01	1.3%	1.3%	1.3%	3.8%	11.5%	9.0%	10.3%	23.1%	26.9%	11.5%	80.8%
3.12 Safety	73	7.66	8	1.82	0.0%	0.0%	0.0%	1.4%	17.8%	11.0%	13.7%	15.1%	21.9%	19.2%	80.9%

The mean performance evaluation by evaluator type is displayed in the graph below.



When measuring performance to DBB projects, all the project attributes are higher on post-1997 projects. The table below provides a comparison for all the attributes.

	Pre/Post 1997 Law	
	Pre	Post
	Mean	Mean
Cost	6.58	7.13
Schedule	7.09	7.61
Owner's Requirements	6.75	7.78
Performance & Quality	6.79	7.62
Public Value	7.21	7.69
Safety	7.33	7.93

Team Performance

Project team participants were asked to evaluate the owner's representative, the architect/engineer, and the GC/CM contractor on the team performance of each. On a scale of 1 to 10, a response of 1 indicates that the team member was adversarial or used avoidance in dealing with team issues and 10 indicates that the member was collaborative and worked for the interest of the team and project, with 5 indicating that the member was accommodating and worked moderately on team issues.

The following are the four team performance attributes that were evaluated:

- Communications
- Problem Solving
- Overall Trust and Candor
- Meeting Project Goals.

For all the team attributes, the mean is at least 2.03 points above 5. The owner's representative's overall mean is 8.00, the architect/engineer's 7.89, and the GC/CM contractor's 7.20. The highest-rated attribute for the owner is meeting project goals with a mean of 8.20, and the lowest is problem-solving with a mean of 7.78. The highest-rated attribute for the architect/engineer is communications with a mean of 7.99, and the lowest is problem-solving with a mean of 7.83. The highest-rated attribute for the contractor is meeting project goals with a mean of 7.32, and the lowest is communications with a mean of 7.03. The table below provides descriptive statistics for all attributes for each team member.

GC/CM Team Survey Section 3.0 Project Evaluation - Project Team Performance

Project Team Performance		Rate each team member's performance on the following elements where: 1=Adversarial / Avoidance 5=Accommodating/Moderate 10=Collaborative/Team Interest															
		Mean	Median	SD	Response Percentage												Total % 6 or Better
					Adversarial / Avoidance				Accommodating / Moderate				Collaborative / Team Interest				
					1	2	3	4	5	6	7	8	9	10			
3.13 Communications (Open, honest, timely, active & empathetic listening, number & tone of letters)																	
	Owner/Owner's Representative	64	7.91	8	1.77	0.0%	0.0%	1.6%	4.7%	6.3%	7.8%	10.9%	23.4%	28.1%	17.2%	87.4%	
	Architect/Engineer	81	7.83	8	1.71	0.0%	1.2%	1.2%	2.5%	6.2%	3.7%	21.0%	27.2%	21.0%	16.0%	88.9%	
	GC/CM Contractor	66	7.03	8	2.42	1.5%	4.5%	7.6%	6.1%	6.1%	3.0%	18.2%	15.2%	30.3%	7.6%	74.3%	
3.14 Problem Solving (Win-win, synergistic, solved at the lowest level, immediate escalation when not responsible)																	
	Owner/Owner's Representative	63	7.78	8	1.83	0.0%	1.6%	1.6%	0.0%	11.1%	11.1%	7.9%	20.6%	33.3%	12.7%	85.6%	
	Architect/Engineer	82	7.85	8	1.71	1.2%	0.0%	0.0%	2.4%	6.1%	7.3%	19.5%	23.2%	24.4%	15.9%	90.3%	
	GC/CM Contractor	66	7.27	8	2.16	0.0%	1.5%	6.1%	7.6%	9.1%	3.0%	16.7%	22.7%	19.7%	13.6%	75.7%	
3.15 Overall Trust / Candor																	
	Owner/Owner's Representative	63	8.10	9	1.92	3.2%	0.0%	0.0%	1.6%	4.8%	6.3%	6.3%	23.8%	36.5%	17.5%	90.4%	
	Architect/Engineer	81	7.89	8	1.76	1.2%	1.2%	1.2%	0.0%	3.7%	7.4%	18.5%	28.4%	21.0%	17.3%	92.6%	
	GC/CM Contractor	66	7.20	8	2.44	3.0%	3.0%	6.1%	6.1%	1.5%	10.6%	12.1%	18.2%	27.3%	12.1%	80.3%	
3.16 Meeting Project Goals																	
	Owner/Owner's Representative	64	8.20	9	1.6	1.6%	0.0%	0.0%	1.6%	3.1%	4.7%	10.9%	25.0%	39.1%	14.1%	93.8%	
	Architect/Engineer	81	7.99	8	1.61	0.0%	1.2%	1.2%	2.5%	1.2%	7.4%	14.8%	30.9%	25.9%	14.8%	93.8%	
	GC/CM Contractor	65	7.32	8	2.33	0.0%	3.1%	7.7%	6.2%	7.7%	4.6%	9.2%	20.0%	27.7%	13.8%	75.3%	

Note: No self-rating was evaluated in the above elements.

The team performance attributes were compared by the evaluator to similar DBB projects on the same scale of 1 to 10. A response of 1 indicates that the team member was more adversarial on the GC/CM project than on a DBB project and 10 indicated that the member was more collaborative than on a DBB project, with 5 indicating that the member's performance was the same as on a DBB project.

For all the team attributes, the mean is at least 2.31 points above 5. The owner's representative's overall mean is 8.02, the architect/engineer's 8.03, and the GC/CM contractor's 7.46. The highest-rated attribute for the owner is overall trust and candor with a mean of 8.09, and the lowest is problem-solving and communications with a mean of 7.98. The highest-rated attribute for the architect/engineer is overall trust and candor with a mean of 8.21, and the lowest is communications with a mean of 7.89. The highest-rated attribute for the contractor is problem-solving with a mean of 7.56, and the lowest is meeting project goals with a mean of 7.31. The table below provides descriptive statistics for all attributes providing a comparison to DBB for each team member.

GC/CM Team Survey: GC/CM Comparison to DBB Project Performance

GC/CM Comparison to DBB Team Performance																	
Compare team members' performance on a GC/CM Project to a DBB Project for each of the following elements where 10 means that the team member was more collaborative on this GC/CM project than on a similar DBB project.																	
	Count	Mean	Median	SD	Response Percentage												Total % 6 or Better
					Team Member was More Adversarial on a GC/CM Project than on a DBB				Team Member's Performance was Equal to DBB				Team Member was More Collaborative on a GC/CM Project than on a DBB				
					1	2	3	4	5	6	7	8	9	10			
3.17 Communications (Open, honest, timely, active & empathetic listening, number & tone of letters)																	
	Owner/Owner's Representative	54	7.98	9	1.94	0.0%	1.9%	0.0%	3.7%	9.3%	11.1%	3.7%	9.3%	44.4%	16.7%	85.2%	
	Architect/Engineer	71	7.89	8	1.54	0.0%	0.0%	0.0%	1.4%	7.0%	12.7%	16.9%	15.5%	35.2%	11.3%	91.6%	
	GC/CM Contractor	53	7.45	8	2.04	1.9%	3.8%	1.9%	1.9%	1.9%	13.2%	11.3%	28.3%	30.2%	5.7%	88.7%	
3.18 Problem Solving (Win-win, synergistic, solved at the lowest level, immediate escalation when not responsible)																	
	Owner/Owner's Representative	54	8.06	9	1.85	0.0%	1.9%	0.0%	1.9%	7.4%	13.0%	5.6%	11.1%	40.7%	18.5%	88.9%	
	Architect/Engineer	71	8.06	8	1.56	0.0%	1.4%	0.0%	1.4%	4.2%	8.5%	9.9%	28.2%	33.8%	12.7%	93.1%	
	GC/CM Contractor	54	7.56	8	2.08	1.9%	3.7%	1.9%	0.0%	5.6%	9.3%	14.8%	24.1%	27.8%	11.1%	87.1%	
3.19 Overall Trust / Candor																	
	Owner/Owner's Representative	54	8.09	9	1.95	0.0%	1.9%	0.0%	5.6%	5.6%	9.3%	5.6%	9.3%	42.6%	20.4%	87.2%	
	Architect/Engineer	71	8.21	9	1.47	0.0%	0.0%	0.0%	1.4%	4.2%	9.9%	12.7%	16.9%	38.0%	16.9%	94.4%	
	GC/CM Contractor	54	7.50	8	2.18	1.9%	3.7%	0.0%	3.7%	7.4%	13.0%	9.3%	14.8%	35.2%	11.1%	83.4%	
3.20 Meeting Project Goals																	
	Owner/Owner's Representative	54	7.98	9	1.86	0.0%	1.9%	0.0%	3.7%	7.4%	9.3%	7.4%	13.0%	42.6%	14.8%	87.1%	
	Architect/Engineer	71	7.94	8	1.49	0.0%	0.0%	0.0%	2.8%	2.8%	16.9%	7.0%	25.4%	35.2%	9.9%	94.4%	
	GC/CM Contractor	54	7.31	8	2.03	1.9%	1.9%	0.0%	5.6%	11.1%	9.3%	14.8%	14.8%	37.0%	3.7%	79.6%	

Owner Facilities Management and Programming

Section 4 of the project team survey asked the evaluator to rate statements on the owner's programming and facilities management of the project. This section helps evaluate if the owner set a foundation for good project management practices. In addition to rating the project, the evaluator was asked to compare the GC/CM project with a similar DBB project in this area.

A scale of 1 to 5 is used, where 1 indicates that the evaluator strongly disagreed with the statement, 5 indicates that the evaluator strongly agreed with the statement, and 3 indicates that the evaluator was neutral or there was no difference. If the evaluator felt that the statement did not apply or he had insufficient information or involvement, he could choose N/A (not applicable).

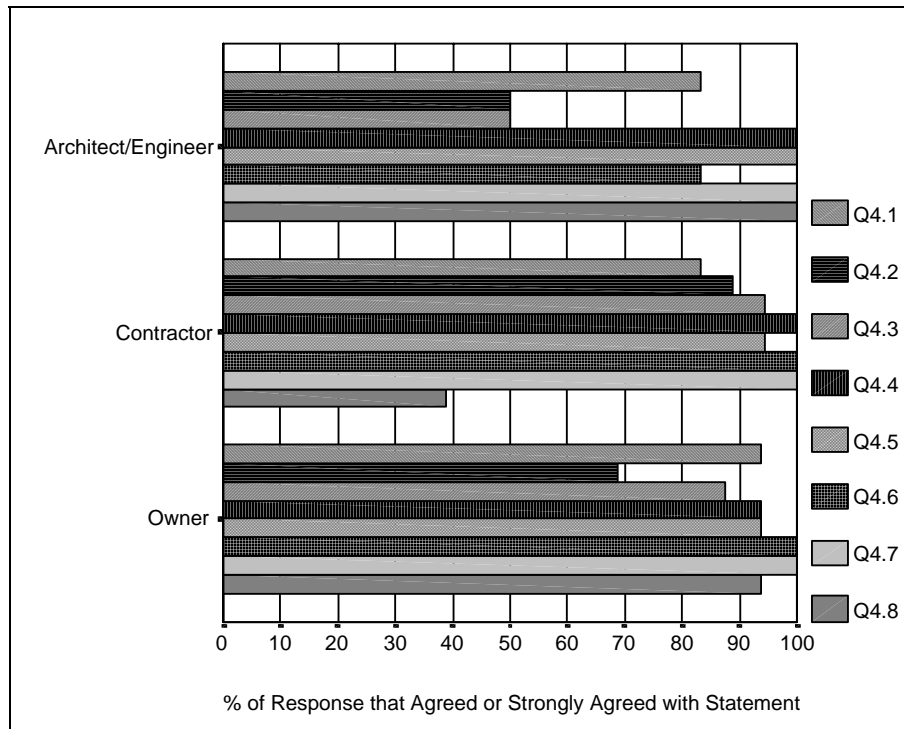
The overall mean for all the project programming statements is 3.93. The overall median is 4, indicating that the evaluator tended to agree with all the programming statements. The highest mean, 4.23, is for the statement, *"The project was properly administered under the applicable RCW requirements."* 75% of the evaluators agreed or strongly agreed with that statement. The lowest mean, 3.29, was for the statement, *"The project scope was frozen after schematic design and change order procedures were adopted."* Only 19% of the evaluators disagreed or strongly disagreed with that statement.

In comparing the two delivery systems, the overall mean is 3.63, where a 3 represents a neutral statement comparing GC/CM to DBB. The overall median is 4, indicating that the evaluator tended to agree with all the statements. The highest mean, 3.83, is for the statement, *"The project schedule was shorter than similar project utilizing DBB."* 46% agreed or strongly agreed with that statement. The lowest mean, 3.52, is for the statement, *"Scope creep was less than similar projects."* Only 8% of the evaluators disagreed or strongly disagreed with that statement. The statement receiving the most disagreement and strong disagreement (still only 13%) is, *"The final project budget was less than similar projects utilizing a DBB delivery method."* The table below provides descriptive statistics for all the statements.

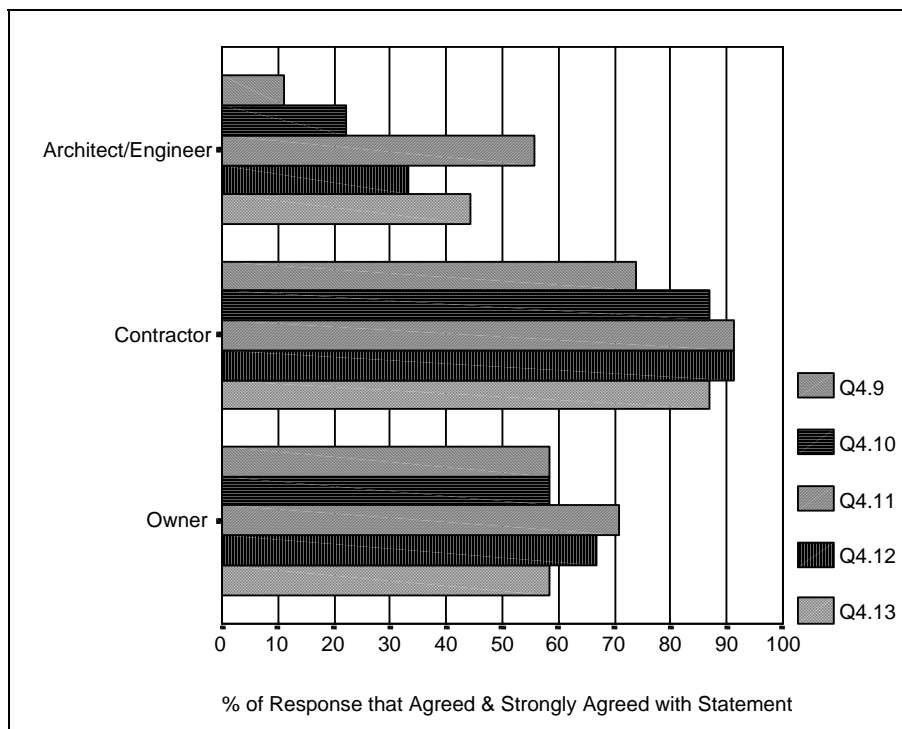
GC/CM Team Survey: Owner Facilities Management and Programming

4.0 Owner/Facilities Management - Programming										
Project Evaluation				Mean	Median	Std D	SA	A	N	D
4.1 The project scope was well defined by the owner's staff.				3.88	4	0.90	17.6%	46.1%	8.8%	7.8%
4.2 Project scope was frozen after schematic design and change control procedures were adopted.				3.29	3.5	1.13	8.8%	32.4%	22.5%	10.8%
4.3 Scope creep was held to a minimum during construction on this project.				3.71	4	1.09	16.7%	40.2%	7.8%	9.8%
4.4 The owner had appropriate representatives during all phases of the project.				4.06	4	0.73	19.6%	53.9%	4.9%	4.9%
4.5 The owner's representative was accessible during all phases of the project.				4.13	4	0.77	26.5%	45.1%	7.8%	3.9%
4.6 The owner's representative was cooperative and open to resolve project issues.				4.14	4	0.74	24.5%	50.0%	5.9%	2.0%
4.7 Project was properly administered under the applicable RCW requirements.				4.23	4	0.61	25.5%	50.0%	4.9%	1.0%
4.8 No public protests were made in using the GC/CM method for this project.				4.00	4	0.93	16.7%	18.6%	11.8%	1.0%
GC/CM Comparison to DBB										
4.9 The project scope was better defined than similar DBB Projects				3.54	4	0.90	9.8%	26.5%	28.4%	3.9%
4.10 Scope creep was less than similar DBB projects.				3.52	4	0.94	8.8%	30.4%	24.5%	4.9%
4.11 The final project schedule was shorter than similar projects utilizing a DBB delivery method.				3.80	4	1.05	18.6%	27.5%	12.7%	6.9%
4.12 The final project budget was less than similar projects utilizing a DBB delivery method.				3.58	4	1.10	12.7%	28.4%	11.8%	9.8%
4.13 The owner's representative was more cooperative and accessible than on a similar DBB Project.				3.72	4	0.88	12.7%	30.4%	21.6%	3.9%

The percentage of response that agreed or strongly agreed with the programming statements by evaluator type is displayed in the graph below.



The percentage of response that agreed or strongly agreed with the programming statements comparing delivery systems by evaluator type is displayed in the graph below.



Design

Section 5 of the project team survey asked the evaluator to rate statements on project design. This section helps evaluate the management of the design. In addition to rating the project, the evaluator was asked to compare the GC/CM project with a similar DBB project in this area. A scale of 1 to 5 is used, as above.

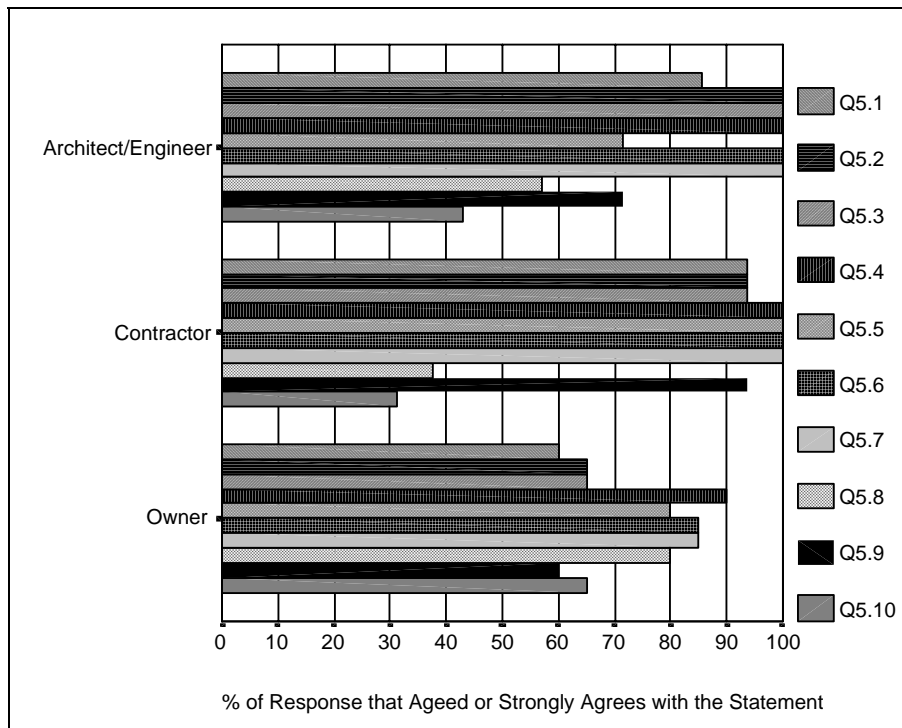
The overall mean for all the project design statements is 3.70. The overall median is 4, indicating that the evaluator tended to agree with all the design statements. The highest mean, 4.06, is for the statement, “*Design team was accessible during all phases of the project.*” 75% of the evaluators agreed or strongly agreed with that statement. The lowest mean, 3.30, is for the statement, “*Design and A/E support was completed within budget.*” Only 7% of the evaluators disagreed or strongly disagreed with that statement. The two statements receiving the most disagreement and strong disagreement (both statements at 30%) are, “*Design changes during construction were held to a minimum on this project*” and “*The design contract adequately addressed and compensated for the designer’s involvement for a project utilizing the GC/CM project delivery method.*”

In comparing the two delivery systems, the overall mean is 3.47. The overall median is 4, indicating that the evaluator tended to agree with all the statements. The highest mean, 3.69, is for the statement, “*Design team was more accessible and cooperative than similar DBB projects.*” 45% agreed or strongly agreed with that statement. The lowest mean, 2.97, is for the statement, “*Design and A/E construction support cost were less than similar DBB projects.*” 17% of the evaluators disagreed or strongly disagreed with that statement, the one receiving the most disagreement and strong disagreement. The table below provides descriptive statistics for all the statements.

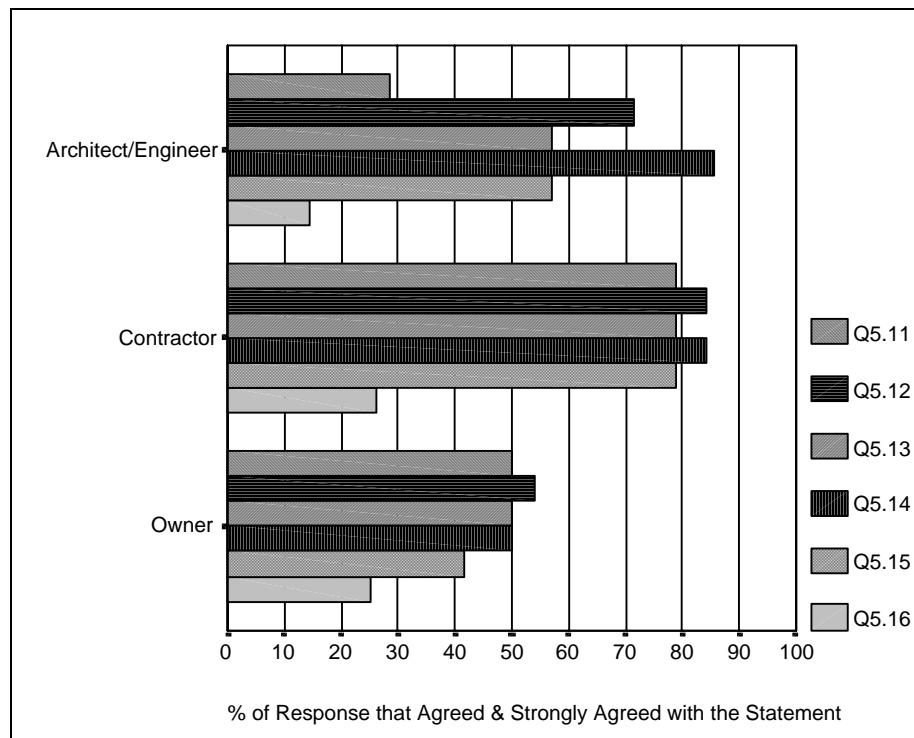
GC/CM Team Survey: Design

5.0 Design										
Project Evaluation				Mean	Median	Std D	SA	A	N	D
5.1 Design documents were appropriate, complete, and timely.				3.56	4	1.01	7.8%	52.0%	10.8%	9.8%
5.2 Design errors and omissions were held to a minimum.				3.61	4	1.07	12.7%	41.2%	9.8%	10.8%
5.3 Design changes during construction were held to a minimum on this project.				3.58	4	1.09	9.8%	44.1%	7.8%	7.8%
5.4 Submittals and RFI's were promptly reviewed and returned.				3.92	4	0.75	12.7%	52.0%	6.9%	5.9%
5.5 The designer had appropriate representation and support during all phases of the project				3.91	4	0.76	16.7%	47.1%	16.7%	3.9%
5.6 Design team was accessible during all phases of the project				4.06	4	0.58	15.7%	58.8%	8.8%	1.0%
5.7 Design team was cooperative and open to resolve project issues.				4.05	4	0.68	19.6%	51.0%	11.8%	2.0%
5.8 The design contract adequately addressed and compensated for the designer's involvement for a project utilizing the GC/CM project delivery method.				3.47	4	0.99	9.8%	27.5%	22.5%	9.8%
5.9 Design was completed on schedule.				3.53	4	0.95	5.9%	45.1%	15.7%	7.8%
5.10 Design and A/E construction support was completed within budget.				3.30	3	0.80	2.0%	23.5%	29.4%	4.9%
GC/CM Comparison to DBB										
5.11 Design document were more appropriate, complete and timely than similar DBB projects.				3.53	4	0.94	8.8%	32.4%	21.6%	7.8%
5.12 Design changes were less than similar DBB projects.				3.57	4	0.97	9.8%	34.3%	17.6%	8.8%
5.13 Submittals and RFI's were more promptly reviewed than similar DBB projects.				3.59	4	0.92	9.8%	30.4%	19.6%	7.8%
5.14 Design team was more accessible and cooperative than similar DBB projects.				3.69	4	0.86	11.8%	33.3%	20.6%	6.9%
5.15 Design schedule was shorter than similar DBB projects.				3.51	4	0.98	9.8%	32.4%	17.6%	12.7%
5.16 Design and A/E construction support costs where less than similar DBB projects.				2.97	3	0.91	3.9%	9.8%	32.4%	13.7%

The percentage of response that agreed or strongly agreed with the design statements by evaluator type is displayed in the graph below.



The percentage of response that agreed or strongly agreed with the design statements that compared delivery systems by evaluator type is displayed in the graph below.



GC/CM Selection Process

Section 6 of the project team survey asked the evaluator to rate statements on the GC/CM selection process. In addition to rating the project, the evaluator was asked to compare the GC/CM project with a similar DBB project in this area. A scale of 1 to 5 is used, as above.

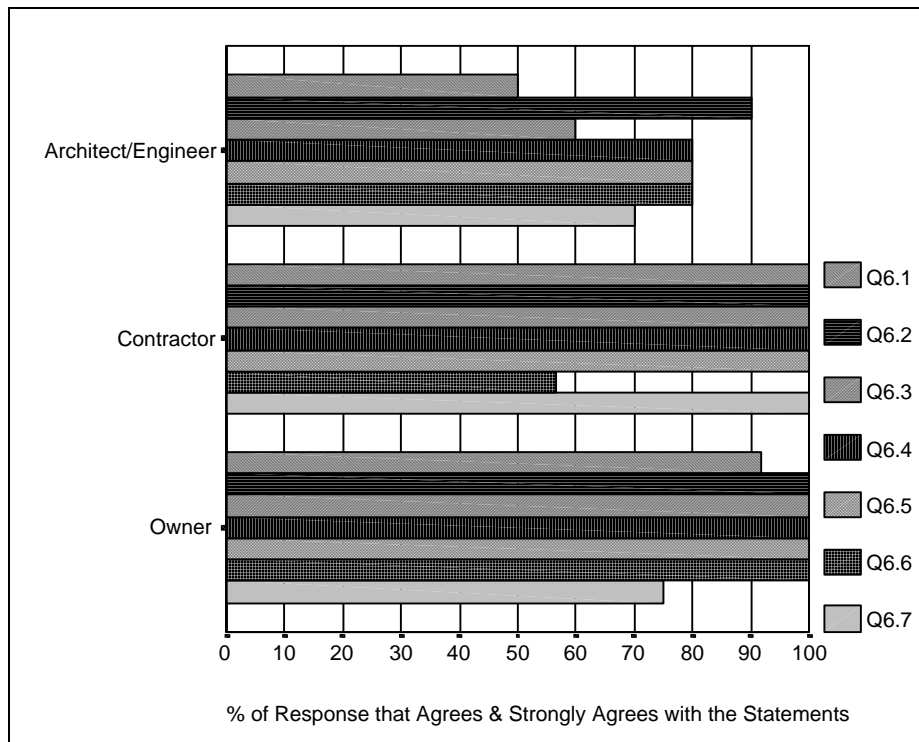
The overall mean for all the GC/CM selection process statements is 4.10. The overall median is 4, indicating that the evaluator tended to agree with all the selection process statements. The highest mean, 4.24, is for the statement, *“The RFQ solicitation and evaluation was fair and objective.”* 69% of the evaluators agreed or strongly agreed with that statement. The lowest mean, 4.01, is for the statement, *“The GC/CM selection process allowed the best qualified contractor to be selected on this projects.”* Only 4% of the evaluators disagreed or strongly disagreed with that statement, the one with the highest percentage of disagreement and strong disagreement.

In comparing the two delivery systems, the overall mean is 3.89. The overall median is 4, indicating that the evaluator tended to agree with all the statements. One statement, *“Less bid selection protests were made on this project as compared to similar DBB projects,”* has a median of 3 and the lowest mean, 3.54. Even though it has the lowest mean, only 4% of the evaluators disagreed or strongly disagreed with that statement. The highest mean, 4.21, is for the statement, *“For this type of project the GC/CM selection process is a better method of selecting the best qualified contractor than the DBB method of selection.”* 60% agreed or strongly agreed with that statement, and only 2% disagreed or strongly disagreed. The table below provides descriptive statistics for all the statements.

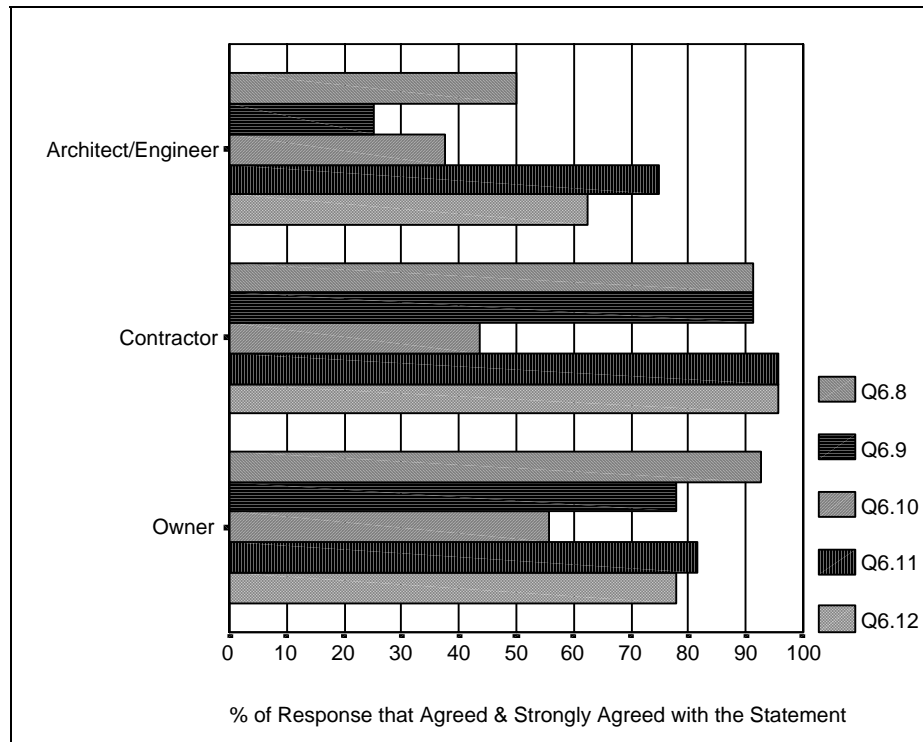
GC/CM Team Survey: GC/CM Selection Process

6.0 GC/CM Selection Process										
Project Evaluation				Mean	Median	Std D	SA	A	N	D
6.1 The RFP was clearly written and expectations well defined.				4.04	4	0.75	17.6%	43.1%	9.8%	1.0%
6.2 The RFQ solicitation and evaluation process was fair and objective.				4.24	4	0.54	21.6%	47.1%	3.9%	0.0%
6.3 Interview requirements were clearly written and expectations well defined.				4.11	4	0.62	16.7%	46.1%	6.9%	1.0%
6.4 The Interview process and evaluation were fair and objective.				4.16	4	0.60	19.6%	44.1%	7.8%	0.0%
6.5 The RFP process and evaluation were fair and objective.				4.19	4	0.59	20.6%	44.1%	6.9%	0.0%
6.6 No bid/selection protests were made during or after the selection process.				4.08	4	0.82	24.5%	29.4%	14.7%	2.0%
6.7 The GC/CM selection process allowed the best qualified contractor be selected on this project.				4.01	4	0.81	19.6%	36.3%	10.8%	3.9%
GC/CM Comparison to DBB										
6.8 The GC/CM selection process is as fair to the construction community as the DBB selection process.				3.99	4	0.85	17.6%	40.2%	7.8%	3.9%
6.9 The GC/CM selection process is as competitive as the DBB selection process.				3.72	4	1.00	13.7%	35.3%	11.8%	7.8%
6.10 Less bid/selection protests were made on this project as compared to similar DBB projects.				3.54	3	0.89	8.8%	20.6%	32.4%	2.9%
6.11 For this type of project the GC/CM selection process is a better method of selecting the best qualified contractor than the DBB method of selection.				4.21	4	0.87	31.4%	25.5%	11.8%	1.0%
6.12 The GC/CM selection process utilized on this project allowed the public to get the best value for its money when compared to using the DBB method for similar projects.				3.97	4	1.07	25.5%	26.5%	10.8%	3.9%

The percentage of response that agreed or strongly agreed with the programming statements by evaluator type is displayed in the graph below.



The percentage of response that agreed or strongly agreed with the programming statements comparing delivery systems by evaluator type is displayed in the graph below.



MACC Negotiations

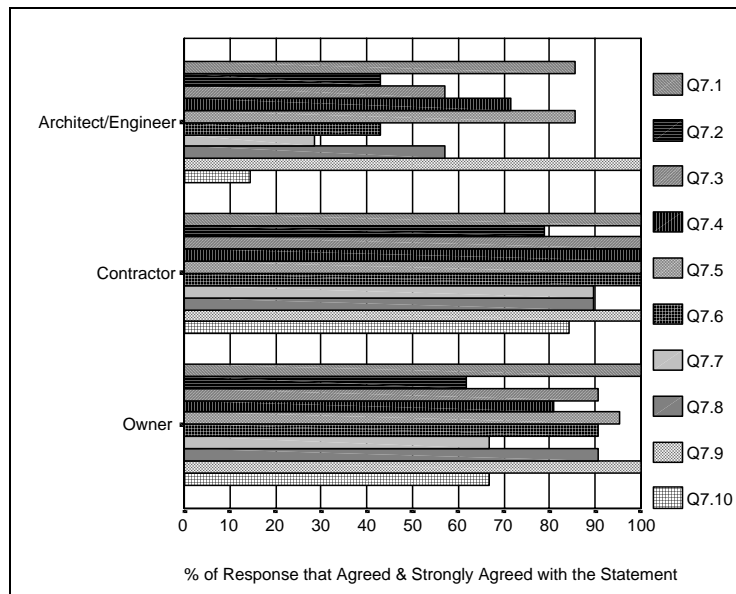
Section 7 of the project team survey asked the evaluator to rate statements on the MACC negotiation process. A scale of 1 to 5 is used as above.

The overall mean for all the MACC negotiation statements is 3.85. The overall median is 4, indicating that the evaluator tended to agree with all the MACC statements. The highest mean, 4.15, is for the statement, “*MACC negotiations were conducted per RCW & RFP requirements.*” 58% of the evaluators agreed or strongly agreed with that statement. The lowest mean, 3.23, is for the statement, “*The MACC negotiations started promptly after the completion of schematic design.*” 22% of the evaluators disagreed or strongly disagreed with that statement. The table below provides descriptive statistics for all the statements.

GC/CM Team Survey: MACC Negotiations

7.0 MACC Negotiations										
	Mean	Median	Std D	SA	A	N	D	SD	NA	
7.1 MACC negotiations were conducted per RCW & RFP requirements.	4.15	4	0.75	19.6%	38.2%	4.9%	1.0%	1.0%	35.3%	
7.2 MACC negotiations started promptly after the completion of schematic design.	3.23	4	1.15	4.9%	31.4%	6.9%	16.7%	4.9%	35.3%	
7.3 The GC/CM contractor provided adequate cost backup in determining MACC.	3.94	4	0.80	13.7%	39.2%	7.8%	4.9%	0.0%	34.3%	
7.4 MACC negotiations were conducted in a team environment by all players.	3.94	4	0.90	15.7%	37.3%	7.8%	2.9%	2.0%	34.3%	
7.5 The Owner was fair and reasonable during MACC negotiations.	4.09	4	0.70	15.7%	41.2%	6.9%	0.0%	1.0%	35.3%	
7.6 The GC/CM contractor was fair and reasonable during MACC negotiations.	3.97	4	0.70	13.7%	37.3%	13.7%	1.0%	0.0%	34.3%	
7.7 Contract incentives were fair and reasonable for the magnitude and type of project.	3.76	4	0.80	9.8%	27.5%	17.6%	2.9%	0.0%	42.2%	
7.8 Contingency funds were reasonable for the magnitude and type of project.	3.79	4	0.96	11.8%	32.4%	11.8%	2.0%	2.9%	39.2%	
7.9 MACC negotiations were successfully conducted with the GC/CM contractor that qualified during the selection process.	4.14	4	0.71	17.6%	38.2%	5.9%	0.0%	1.0%	37.3%	
7.10 The final negotiated MACC was less than or equal to the estimated amount at the RFP phase.	3.47	4	1.14	10.8%	24.5%	10.8%	11.8%	2.9%	39.2%	

The percentage of responses that agreed or strongly agreed with the MACC negotiation statements by evaluator type is displayed in the graph below.



Preconstruction Services

Section 8 of the project team survey asked the evaluator to rate statements on preconstruction services provided by the GC/CM contractor. In addition to rating the project, the evaluator was asked to compare the GC/CM project with a similar DBB project in that area. A scale of 1 to 5 was used, as above.

The overall mean for all the preconstruction statements is 3.80. The overall median is 4, indicating that the evaluator tended to agree with all the preconstruction statements. The highest mean, 4.01, is for the statement, *“The GC/CM contractor’s CM team was accessible during design development.”* 57% of the evaluators agreed or strongly agreed with that statement. The lowest mean, 3.53, is for the statement, *“The GC/CM contractor’s preconstruction services assisted in reducing the overall project budget.”* 13% of the evaluators disagreed or strongly disagreed with that statement, but 40% agreed or strongly agreed with it.

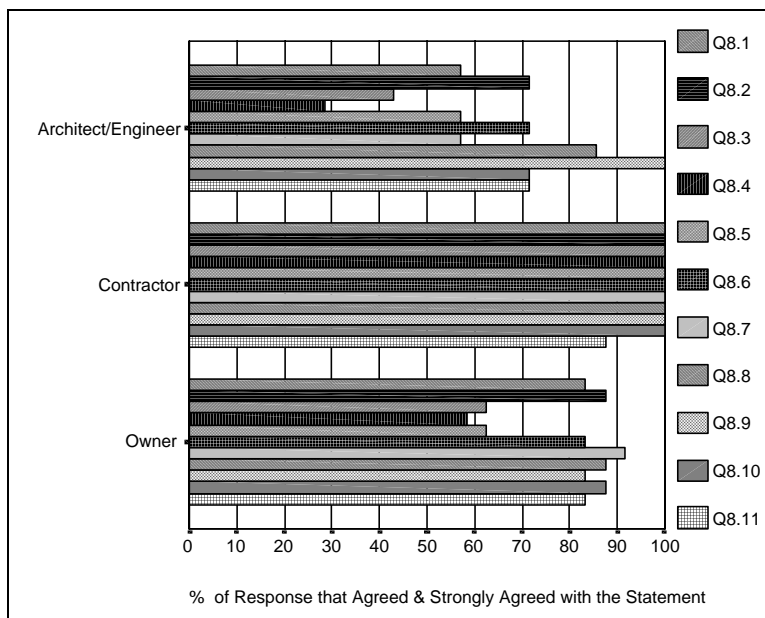
In comparing the two delivery systems, the overall mean is 3.88. The overall median is 4, indicating that the evaluator tended to agree with all the statements. The highest mean, 4.18, is for the statement, *“The GC/CM contractor had more involvement during design development than a contractor would if selected under the DBB method.”* 54% agreed or strongly agreed with that statement. The lowest mean, 3.68, is for the statement, *“The GC/CM preconstruction service contributed to a shorter project schedule than similar DBB projects.”* Only 7% of the evaluators disagreed or strongly disagreed with that statement, and 40% agreed or strongly agreed with it. The table below provides descriptive statistics for all the statements.

GC/CM Team Survey: Preconstruction Services

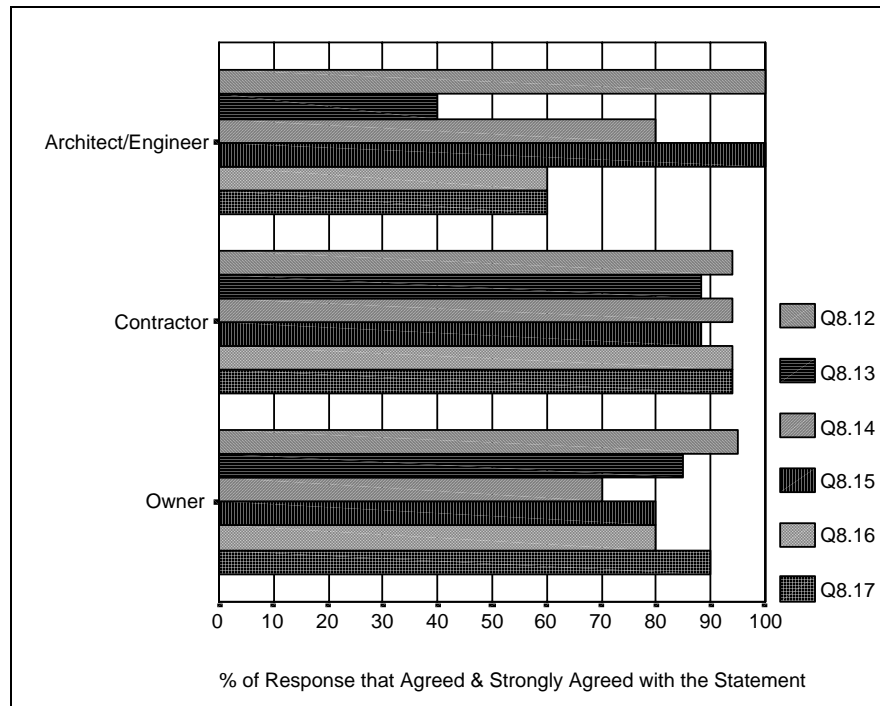
8.0 Preconstruction Services

Project Evaluation	Mean	Median	St d D	SA	A	N	D	SD	NA
8.1 The GC/CM contractor successfully provided all the preconstruction services identified in the RFP and RFQ.	3.85	4	0.86	10.8%	45.1%	7.8%	3.9%	2.0%	30.4%
8.2 The GC/CM contractor's input assisted the owner in site and facilities planning to minimize construction impact.	3.81	4	0.82	9.8%	42.2%	12.7%	2.0%	2.0%	31.4%
8.3 The GC/CM contractor's constructability advise assisted in the development of quality documents.	3.63	4	1.03	12.7%	31.4%	16.7%	6.9%	2.9%	29.4%
8.4 The GC/CM contractor's preconstruction services assisted in reducing the overall project budget.	3.53	4	1.07	12.7%	27.5%	17.6%	9.8%	2.9%	29.4%
8.5 The GC/CM contractor's preconstruction services assisted in reducing the overall project schedule.	3.59	4	1.04	11.8%	30.4%	15.7%	7.8%	2.9%	31.4%
8.6 The GC/CM contractor's input prior to construction contributed to overall project success.	3.81	4	0.93	11.8%	38.2%	8.8%	4.9%	2.0%	34.3%
8.7 The GC/CM contractor staffed the project for preconstruction services as defined in the RFQ and RFP.	3.92	4	0.83	11.8%	48.0%	6.9%	1.0%	2.9%	29.4%
8.8 The GC/CM contractor had qualified representation during the preconstruction phases of the project.	3.94	4	0.80	13.7%	45.1%	6.9%	3.9%	1.0%	29.4%
8.9 The GC/CM contractor's CM team was accessible during design development.	4.01	4	0.63	12.7%	44.1%	9.8%	1.0%	0.0%	32.4%
8.10 The GC/CM contractor's CM team was cooperative and open to resolve project issues.	3.93	4	0.79	14.7%	41.2%	9.8%	4.9%	0.0%	29.4%
8.11 The GC/CM contract adequately addressed and compensated for the preconstruction services provided.	3.76	4	0.83	8.8%	40.2%	11.8%	4.9%	1.0%	33.3%
GC/CM Comparison to DBB									
8.12 The GC/CM contractor had more involvement during design development than a contractor would if selected under the DBB method.	4.18	4	0.85	25.5%	28.4%	5.9%	3.9%	0.0%	36.3%
8.13 The GC/CM contractor's preconstruction services contributed to less project cost growth than traditional DBB projects.	3.70	4	0.85	8.8%	32.4%	16.7%	3.9%	1.0%	37.3%
8.14 The GC/CM contractor's preconstruction services contributed to a shorter project schedule than similar DBB projects.	3.68	4	0.91	9.8%	30.4%	14.7%	5.9%	1.0%	38.2%
8.15 The GC/CM contractor's preconstruction services contributed to less constructability problems during construction than traditional DBB projects.	3.83	4	0.81	9.8%	32.4%	12.7%	2.0%	1.0%	42.2%
8.16 The GC/CM contractor's preconstruction services contributed to less construction impact to the owner's ongoing operation than traditional DBB projects.	3.91	4	0.81	9.8%	27.5%	12.7%	2.0%	0.0%	47.1%
8.17 The GC/CM contractor's preconstruction services contributed to a more successful project than traditional DBB projects.	4.03	4	0.97	10.8%	31.4%	10.8%	3.9%	0.0%	38.2%

The percentage of responses that agreed or strongly agreed with the preconstruction statements by evaluator type is displayed in the graph below.



The percentage of responses that agreed or strongly agreed with the preconstruction statements comparing delivery systems by evaluator type is displayed in the graph below.



A second section allows an evaluator to rate the GC/CM contractor on 11 performance attributes. A scale of 1 to 10 is used, as above.

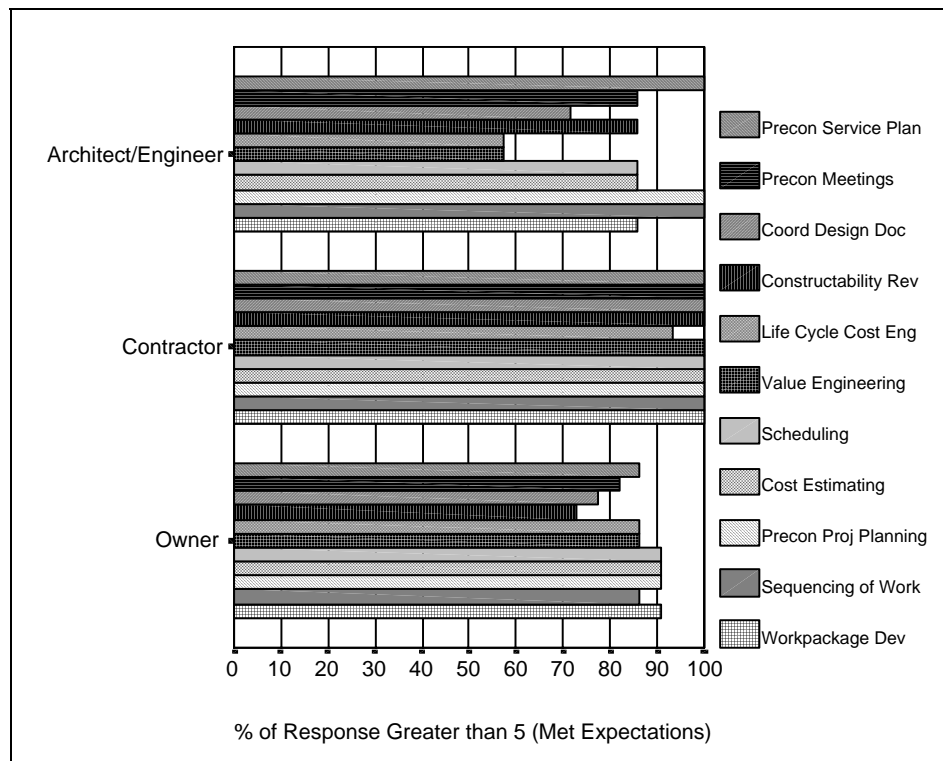
The overall mean for all 11 attributes is 7.3. The highest mean, 7.65, is for “*Sequencing of Work.*” 86% of the evaluators rated the contractor above a 6. The lowest mean, 6.75, is for “*Life Cycle Cost Engineering.*” 22% rated the GC/CM contractor with a 5 or less, and 78% rated the GC/CM contractor as a 6 or over. The table below provides descriptive statistic for all the attributes.

GC/CM Preconstruction Services Performance Attributes

8.0 Preconstruction Services														
GC/CM Preconstruction Services														
On a scale of 1 to 10 rate the GC/CM contractor on the following preconstruction services where 10 means that it exceeded project expectations.														
	Count	Mean	Median	SD	Response Percentage									
					Did Not Meet		Met						Exceeded	
					1	2	3	4	5	6	7	8	9	10
8.18 Preconstruction service plan.	70	7.24	8	1.91	2.9%	1.4%	0.0%	0.0%	8.6%	22.9%	11.4%	21.4%	27.1%	4.3%
8.19 Conducting preconstruction meeting	70	7.40	8	1.77	1.4%	1.4%	0.0%	2.9%	7.1%	15.7%	12.9%	24.3%	32.9%	1.4%
8.20 Coordinating design documents.	70	6.91	7	2.28	2.9%	2.9%	4.3%	4.3%	10.0%	15.7%	11.4%	11.4%	34.3%	2.9%
8.21 Constructability reviews.	72	7.07	7.5	2.38	2.8%	4.2%	2.8%	4.2%	8.3%	13.9%	13.9%	15.3%	20.8%	13.9%
8.22 Life cycle cost engineering.	59	6.75	7	2.32	3.4%	3.4%	6.8%	3.4%	5.1%	18.6%	15.3%	11.9%	30.5%	1.7%
8.23 Value engineering.	72	7.22	8	2.2	1.4%	1.4%	5.6%	5.6%	8.3%	12.5%	4.2%	26.4%	25.0%	9.7%
8.24 Scheduling.	72	7.54	8	2.08	2.8%	0.0%	1.4%	5.6%	4.2%	16.7%	6.9%	18.1%	33.3%	11.1%
8.25 Cost estimating.	72	7.51	8	1.82	0.0%	0.0%	2.8%	2.8%	6.9%	23.6%	6.9%	16.7%	29.2%	11.1%
8.26 Preconstruction project planning.	71	7.39	8	2.01	1.4%	2.8%	0.0%	2.8%	8.5%	16.9%	11.3%	16.9%	31.0%	8.5%
8.27 Sequencing of work.	71	7.65	8	1.84	1.4%	0.0%	0.0%	2.8%	9.9%	15.5%	8.5%	15.5%	38.0%	8.5%
8.28 Workpackage development.	70	7.57	8	1.94	0.0%	1.4%	0.0%	2.9%	15.7%	12.9%	8.6%	15.7%	27.1%	15.7%

Note: The above includes GC/CM contractor’s self-rating.

The percentage of responses above 5 (meets expectations) by evaluator type for preconstruction services performance attributes is displayed in the graph below.



GC/CM Project Management

Section 9 of the project team survey asked the evaluator to rate statements on the project management services provided by the GC/CM contractor. In addition to rating the project, the evaluator was asked to compare the GC/CM project with a similar DBB project in this area. A scale of 1 to 5 was used, as above.

The overall mean for all the project management statements is 3.77. The overall median is 4, indicating that the evaluator tended to agree with all the project management statements. The highest mean, 3.91, is for the statement, *“The GC/CM contractor’s project management team was cooperative and open to resolve issues.”* 59% of the evaluators agreed or strongly agreed with that statement. The lowest mean, 3.58, is for the statement, *“Partnering was successfully utilized on this project.”* 8% of the evaluators disagreed or strongly disagreed with that statement, and 38% agreed or strongly agreed with it.

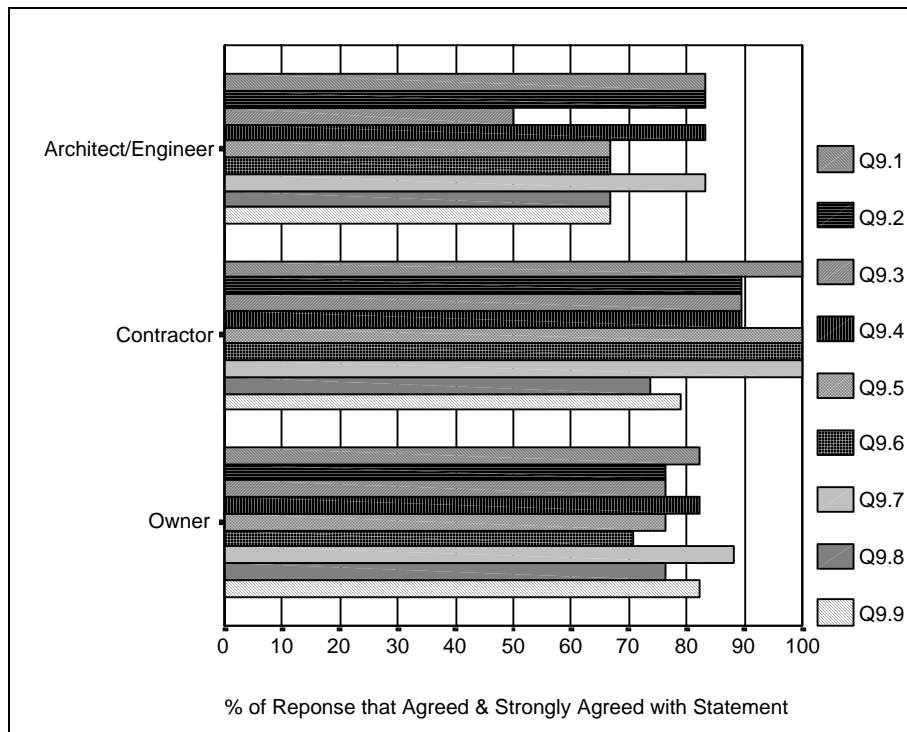
In comparing the two delivery systems, the overall mean is 3.66. The overall median is 4, indicating that the evaluator tended to agree with all the statements. The highest mean, 3.79, is for the statement, *“The GC/CM contractor’s project management services contributed to less construction impact to the owner’s ongoing operations than traditional DBB projects.”* 40% agreed or strongly agreed with that statement. The lowest mean, 3.55, is for the statement, *“The GC/CM contractor’s project management services contributed to less cost growth than traditional DBB projects.”* 11% of the evaluators disagreed or strongly disagreed with that statement, and 42% agreed or strongly agreed with it. The table below provides descriptive statistics for all the statements.

GC/CM Team Survey: Project Management

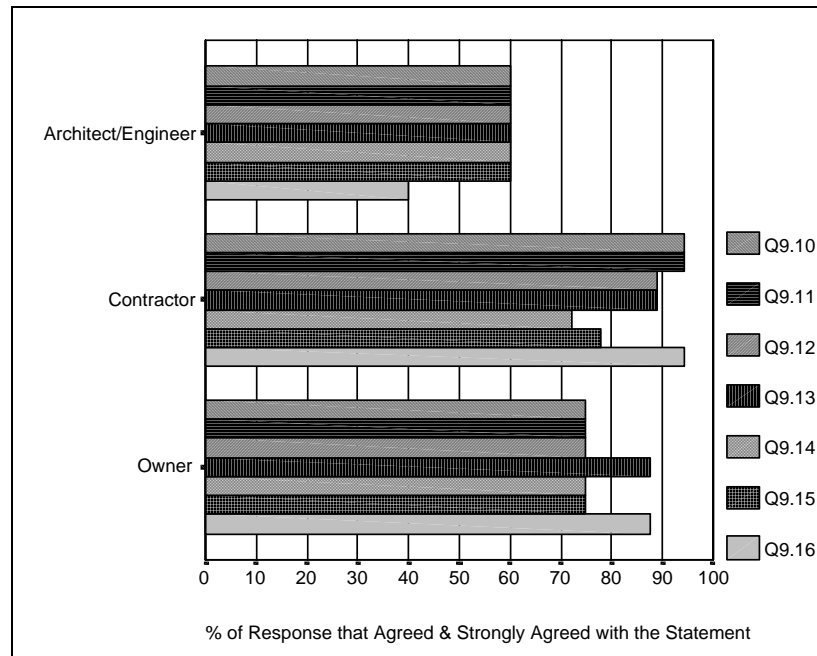
9.0 GC/CM Project Management

Project Evaluation	Mean	Median	St d D	SA	A	N	D	SD	NA
9.1 The GC/CM contractor was proactive and collaborated with the Owner and A/E in accomplishing planning, design, and development of the work in a manner that supported the Owner's effort to maintain the MACC.	3.90	4	0.97	16.7%	40.2%	6.9%	3.9%	2.9%	29.4%
9.2 The GC/CM contractor successfully managed the project budget.	3.69	4	1.02	12.7%	34.3%	14.7%	3.9%	3.9%	30.4%
9.3 The GC/CM contractor successfully managed the contingency funds.	3.66	4	1.02	11.8%	31.4%	16.7%	2.9%	3.9%	33.3%
9.4 Contingency funds were used to benefit the overall project.	3.86	4	1.03	17.6%	33.3%	11.8%	2.0%	3.9%	31.4%
9.5 The GC/CM contractor successfully managed the project schedule.	3.73	4	1.08	13.7%	39.2%	9.8%	2.9%	5.9%	28.4%
9.6 The GC/CM contractor provided experienced, knowledgeable staff for the duration of the project as identified in the RFQ.	3.78	4	1.00	13.7%	41.2%	9.8%	3.9%	3.9%	27.5%
9.7 The GC/CM contractor's project management team was cooperative and open to resolve project issues.	3.91	4	1.02	20.6%	38.2%	9.8%	2.9%	3.9%	24.5%
9.8 Partnering was successfully utilized on this project.	3.58	4	1.10	11.8%	25.5%	17.6%	2.9%	4.9%	37.3%
9.9 Dispute resolution procedures (DRB, etc.) were adequate for this project.	3.82	4	0.81	11.8%	31.4%	18.6%	1.0%	1.0%	36.3%
GC/CM Comparison to DBB									
9.10 The GC/CM contractor's project management services contributed to less project cost growth than traditional DBB projects.	3.55	4	1.04	7.8%	34.3%	11.8%	6.9%	3.9%	35.3%
9.11 The GC/CM contractor's project management services contributed to less project schedule growth than similar DBB projects.	3.58	4	1.14	11.8%	30.4%	10.8%	6.9%	4.9%	35.3%
9.12 The GC/CM contractor's project management services contributed to less constructability problems during construction than traditional DBB projects.	3.67	4	1.05	12.7%	26.5%	14.7%	4.9%	2.9%	38.2%
9.13 The GC/CM contractor's project management services contributed to less construction impact to the owner's ongoing operations than traditional DBB projects.	3.79	4	0.92	10.8%	28.4%	12.7%	2.0%	2.0%	44.1%
9.14 Partnering was more successful than similar DBB projects.	3.69	4	0.96	10.8%	24.5%	16.7%	2.9%	2.0%	43.1%
9.15 Formal disputes were less than similar DBB projects.	3.67	4	0.95	8.8%	29.4%	15.7%	2.0%	2.9%	41.2%
9.16 The GC/CM contractor's project management services contributed to a more successful project than DBB projects.	3.65	4	1.03	10.8%	30.4%	11.8%	5.9%	2.9%	38.2%

The percentage of responses that agreed or strongly agreed with the project management statements by evaluator type is displayed in the graph below.



The percentage of responses that agreed or strongly agreed with the project management statements comparing delivery systems by evaluator type is displayed in the graph below.



A second section of the survey allowed evaluators to rate the GC/CM contractor on the performance of 18 project management project attributes. A scale of 1 to 10 was used, as above.

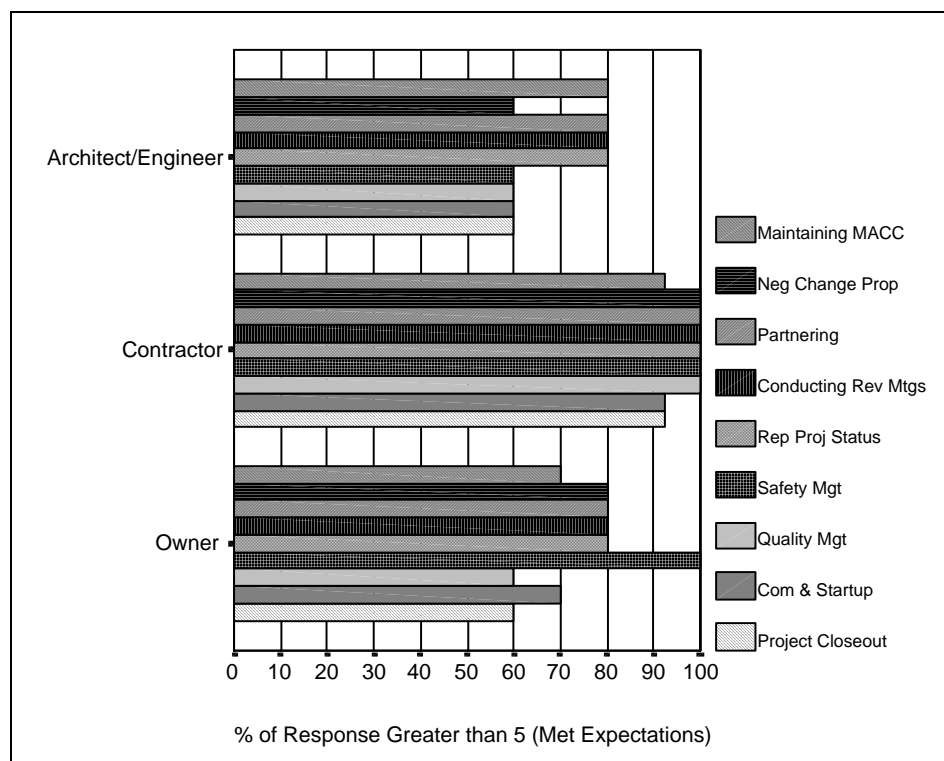
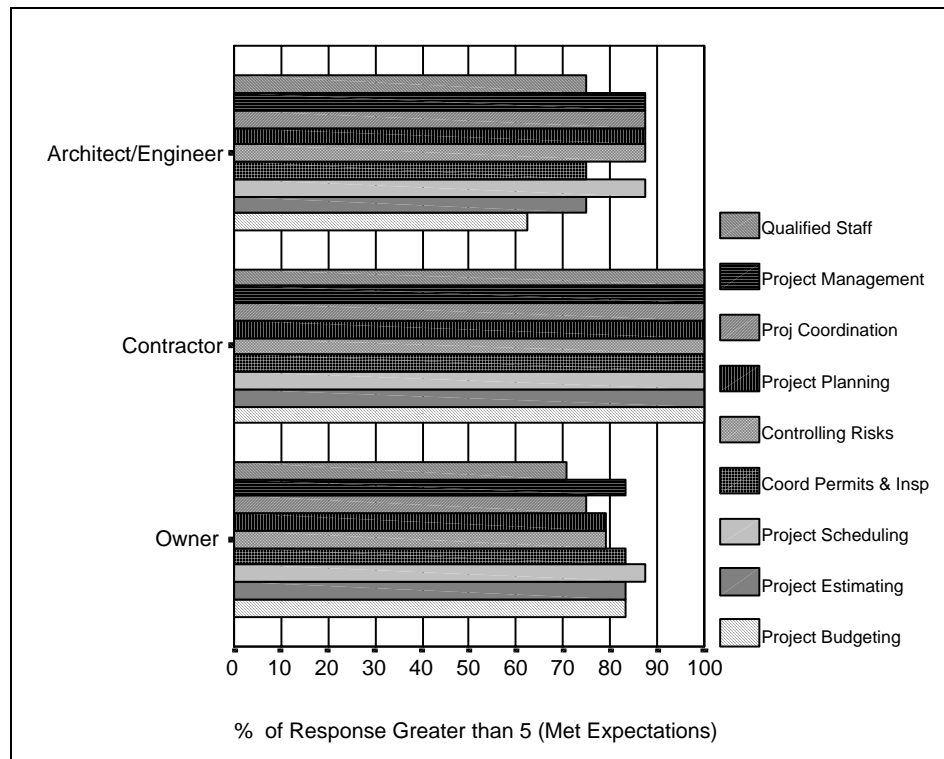
The overall mean for all 18 attributes is 7.3. The highest mean, 8.21, is for “*Safety Management.*” 91% of the evaluators rated the contractor above a 6. The lowest mean, 6.86, is for “*Negotiating Change Orders.*” 25% rated the GC/CM contractor with a 5 or less, and 75% rated the GC/CM contractor as a 6 or over. The table below provides descriptive statistics for all the attributes.

GC/CM Project Management Performance Attributes

9.0 GC/CM Project Management														
GC/CM Project Responsibilities														
On a scale of 1 to 10 rate the GC/CM contractor on the following project management responsibilities where 10 means it exceeded project expectations.														
	Count	Mean	Median	SD	Response Percentage									
					Did Not Meet					Met				
					1	2	3	4	5	6	7	8	9	10
9.17 Providing qualified staff for each project	79	7.28	8	2.2	1.3%	3.8%	1.3%	5.1%	8.9%	15.2%	6.3%	19.0%	29.1%	10.1%
9.18 Overall project management.	80	7.36	8	2.05	0.0%	5.0%	1.3%	2.5%	6.3%	18.8%	7.5%	21.3%	28.8%	8.8%
9.19 Overall project coordination.	80	7.26	8	2.19	2.5%	3.8%	1.3%	2.5%	7.5%	15.0%	10.0%	21.3%	27.5%	8.8%
9.20 Project planning.	81	7.24	8	2.18	1.2%	3.7%	2.5%	4.9%	4.9%	17.3%	3.7%	24.7%	27.2%	8.6%
9.21 Controlling project risks.	76	7.30	8	2.21	1.3%	3.9%	3.9%	2.6%	5.3%	11.8%	9.2%	23.7%	27.6%	9.2%
9.22 Coordinating project permits and ins	70	7.51	8	1.93	1.4%	1.4%	1.4%	1.4%	7.1%	14.3%	8.6%	27.1%	25.7%	10.0%
9.23 Project scheduling.	76	7.37	8	2.1	1.3%	2.6%	3.9%	2.6%	5.3%	11.8%	14.5%	22.4%	25.0%	10.5%
9.24 Project estimating.	72	7.22	8	2.14	1.4%	1.4%	5.6%	2.8%	8.3%	13.9%	15.3%	12.5%	30.6%	8.3%
9.25 Project budgeting & forecasting pro	72	7.06	8	2.32	2.8%	2.8%	5.6%	2.8%	9.7%	9.7%	15.3%	15.3%	27.8%	8.3%
9.26 Maintaining the project within the M	60	7.37	8	2.31	3.3%	0.0%	3.3%	3.3%	8.3%	18.3%	10.0%	13.3%	18.3%	21.7%
9.27 Negotiating change proposals.	69	6.86	7	2.45	4.3%	4.3%	2.9%	2.9%	10.1%	17.4%	8.7%	17.4%	21.7%	10.1%
9.28 Partnering.	64	7.08	8	2.32	3.1%	3.1%	3.1%	3.1%	7.8%	18.8%	9.4%	14.1%	28.1%	9.4%
9.29 Conducting project review meetings	70	7.42	8	1.93	0.0%	2.9%	1.4%	1.4%	8.6%	17.1%	10.0%	20.0%	27.1%	10.0%
9.30 Reporting project status to the Own	66	7.77	8	1.79	0.0%	0.0%	1.5%	3.0%	10.6%	10.6%	9.1%	19.7%	31.8%	13.6%
9.31 Safety management.	70	8.21	9	1.7	0.0%	0.0%	1.4%	4.3%	2.9%	7.1%	25.7%	27.1%	24.3%	91.3%
9.32 Quality management.	72	7.35	8	2.15	0.0%	5.6%	0.0%	6.9%	6.9%	12.5%	8.3%	18.1%	33.3%	8.3%
9.33 Commissioning and startup.	47	7.11	8	2.22	0.0%	8.5%	0.0%	2.1%	12.8%	12.8%	6.4%	21.3%	31.9%	4.3%
9.34 Project closeout.	44	7.02	7	2.12	2.3%	0.0%	2.3%	9.1%	9.1%	18.2%	11.4%	13.6%	27.3%	6.8%

Note: The above includes GC/CM contractor's self-rating.

The percentage of responses above 5 (meets expectations) by evaluator type for project management services performance attributes is displayed in the two graphs below.



Subcontractor Workpackage Development

Section 10 of the project team survey asked the evaluator to rate statements on the GC/CM's performance in subcontractor workpackage development. In addition to rating the project, the evaluator was asked to compare the GC/CM project with a similar DBB project in that area. A scale of 1 to 5 was used, as above.

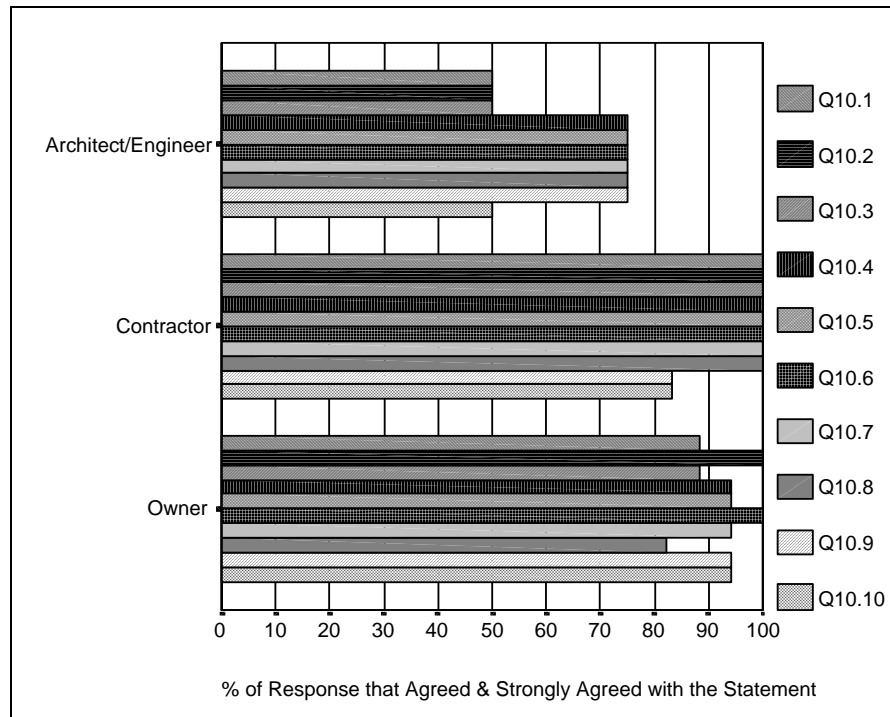
The overall mean for all the subcontractor workpackage statements is 4.06. The overall median is 4, indicating that the evaluator tended to agree with all the subcontractor workpackage statements. The highest mean, 4.21, is for the statement, *"In the selection process subcontractors were treated fairly and ethically."* 71% of the evaluators agreed or strongly agreed with that statement. The lowest mean, 3.87, is for the statement, *"The GC/CM contractor provided an adequate subcontractor plan."* Only 4% percent of the evaluators disagreed or strongly disagreed with this statement, and 59% agreed or strongly agreed with it.

In comparing the two delivery systems, the overall mean is 3.58. The highest mean, 4.15, is for the statement, *"Subcontracting was open to public bidding similar DBB projects."* 62% agreed or strongly agreed with that statement. The lowest mean, 3.20, is for the statement, *"The utilization and involvement of MWBE's was easier than DBB projects."* 19% of the evaluator disagreed or strongly disagreed with that statement, and 30% agreed or strongly agreed with it. The table below provides descriptive statistics for all the statements.

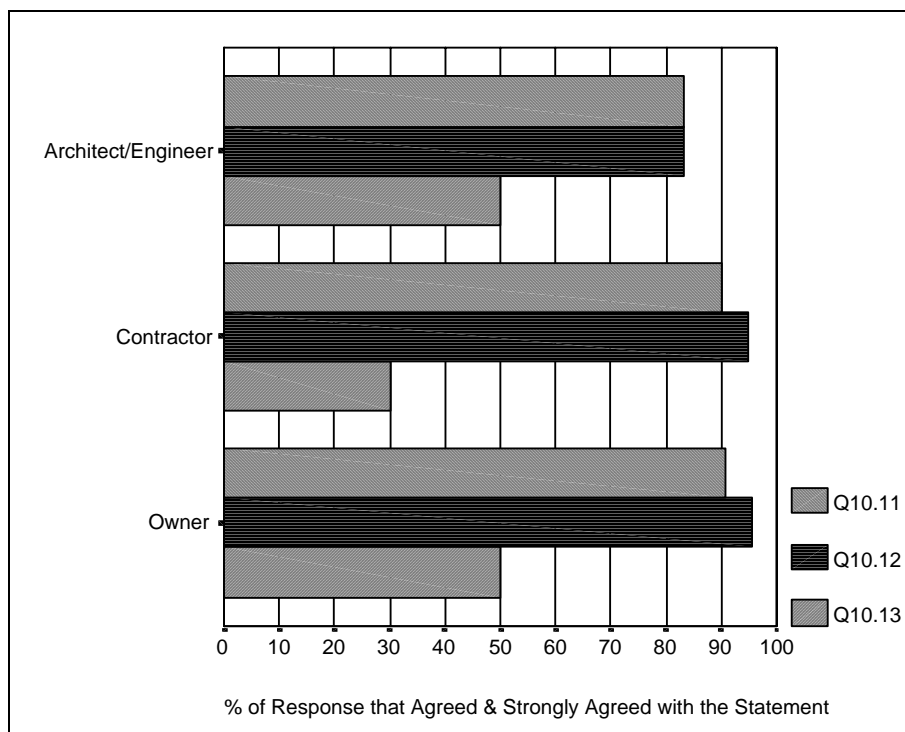
GC/CM Team Survey: Subcontractor Workpackage Development

10.0 Subcontract Workpackage Development										
Project Evaluation	Mean	Median	St d D	SA	A	N	D	SD	NA	
10.1 The GC/CM contractor provided an adequate subcontractor plan.	3.87	4	0.79	13.7%	45.1%	14.7%	2.9%	1.0%	22.5%	
10.2 Subcontracting was performed per RCW requirements.	4.09	4	0.66	17.6%	52.0%	7.8%	0.0%	1.0%	21.6%	
10.3 This project was broken into appropriate work packages.	4.00	4	0.76	18.6%	45.1%	10.8%	3.9%	0.0%	21.6%	
10.4 All appropriate elements of the project were publicly bid.	4.10	4	0.69	18.6%	51.0%	5.9%	1.0%	1.0%	22.5%	
10.5 The method of subcontract workpackage solicitation and evaluation process was fair and objective.	4.11	4	0.68	18.6%	52.0%	4.9%	1.0%	1.0%	22.5%	
10.6 In the selection process subcontractors were treated fairly and ethically.	4.21	4	0.65	23.5%	47.1%	3.9%	2.0%	0.0%	23.5%	
10.7 Any GC/CM self-performance was done in accordance to RCW requirements	4.12	4	0.62	14.7%	35.3%	7.8%	0.0%	0.0%	42.2%	
10.8 The GC/CM contractor informed workpackage bidders that it would compete for the work.	4.13	4	0.63	14.7%	32.4%	7.8%	0.0%	0.0%	45.1%	
10.9 Contract-specified MWBE requirements, if any, were met.	4.00	4	0.67	13.7%	39.2%	11.8%	1.0%	0.0%	34.3%	
10.10 The GC/CM contractor's form of subcontract adequately addressed subcontractors' involvement in a GC/CM project.	3.92	4	0.80	15.7%	45.1%	12.7%	2.9%	1.0%	22.5%	
GC/CM Comparison to DBB										
10.11 Subcontracting was as open to public bidding as similar DBB projects.	4.15	4	0.71	20.6%	41.2%	6.9%	0.0%	1.0%	30.4%	
10.12 In the selection process subcontractors were treated as fairly and ethically as similar DBB projects.	3.40	3	0.92	5.9%	19.6%	24.5%	4.9%	2.0%	43.1%	
10.13 The utilization and involvement of MWBEs was easier than DBB projects.	3.20	4	1.16	4.9%	25.5%	8.8%	13.7%	4.9%	42.2%	

The percentage of responses that agreed or strongly agreed with the subcontractor workpackage statements by evaluator type is displayed in the graph below.



The percentage of responses that agreed or strongly agreed with the subcontractor workpackage statements comparing delivery systems by evaluator type is displayed in the graph below.



Construction

Section 11 of the project team survey asked the evaluator to rate statements on the construction performance of the GC/CM contractor. In addition to rating the project, the evaluator was asked to compare the GC/CM project with a similar DBB project in that area. A scale of 1 to 5 was used, as above.

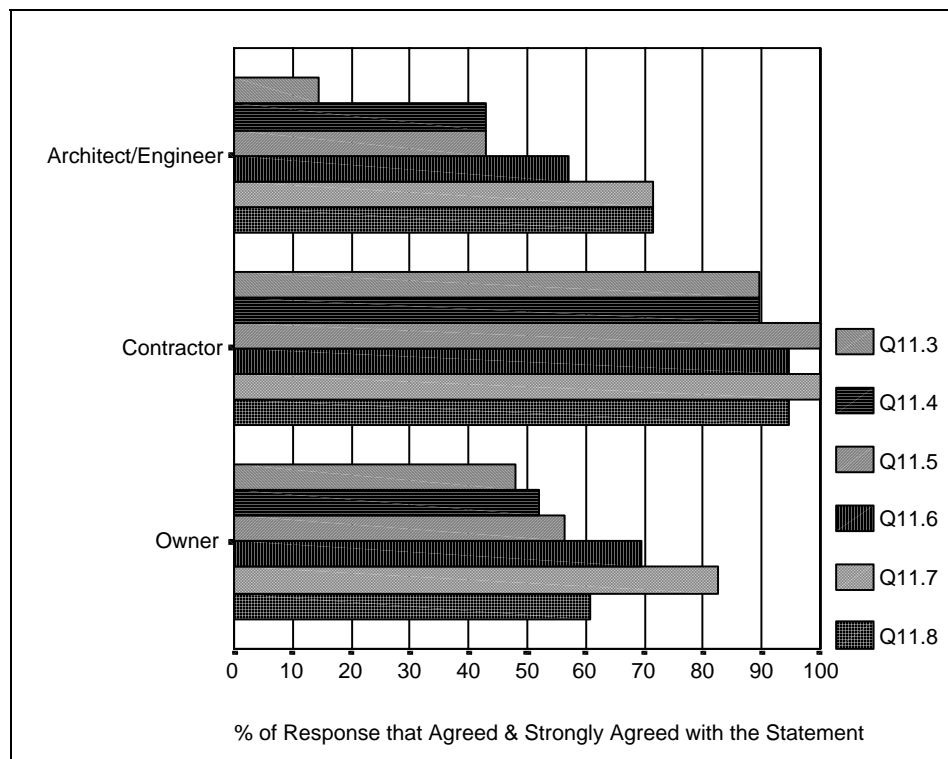
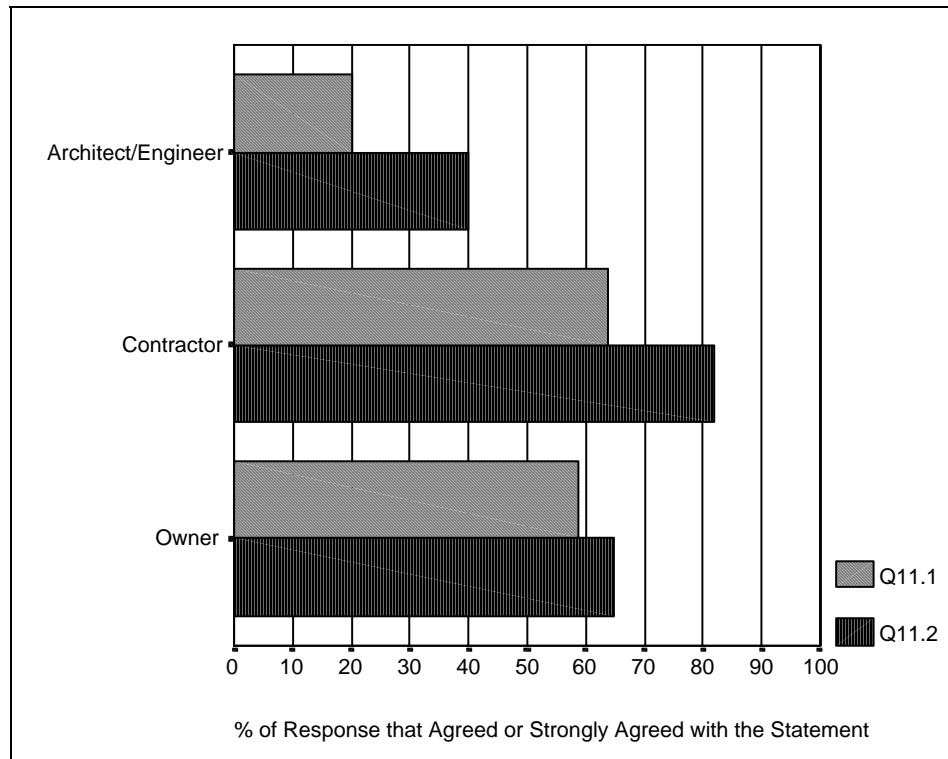
The overall mean for all the construction statements is 3.67. The overall median is 4, indicating that the evaluator tended to agree with all the construction statements. The highest mean, 4.09, is for the statement, “*Minimum disruptions of the owner’s ongoing site operations occurred.*” 55% of the evaluators agreed or strongly agreed with that statement. The lowest mean, 3.20, is for the statement, “*The GC/CM contractor’s staff was independent of its CM/Project staff.*” 19% of the evaluators disagreed or strongly disagreed with that statement, and 30% agreed or strongly agreed with it.

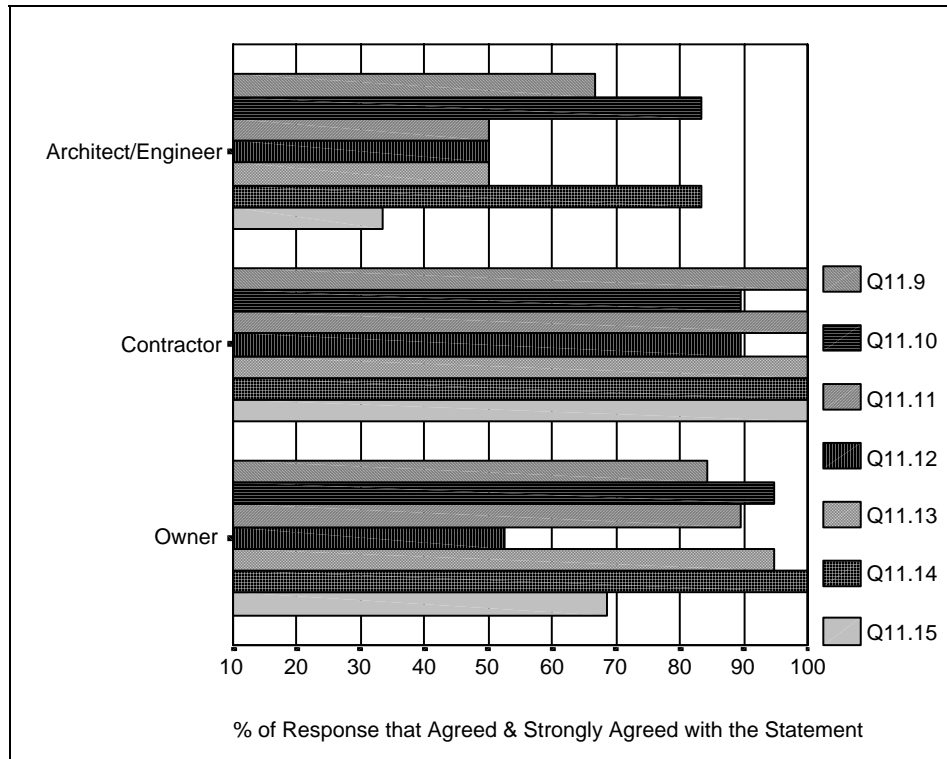
In comparing the two delivery systems, the overall mean is 3.67. The overall median is 4, indicating that the evaluator tended to agree with all the statements. The highest mean, 3.88, is for the statement, “*The quality of this project was equivalent to similar DBB projects.*” 46% agreed or strongly agreed with that statement. The lowest mean, 3.39, is for the statement, “*Construction cost was lower than similar DBB projects.*” 12% of the evaluators disagreed or strongly disagreed with that statement, and 30% agreed or strongly agreed with it. The table below provides descriptive statistics for all the statements.

GC/CM Team Survey: Construction

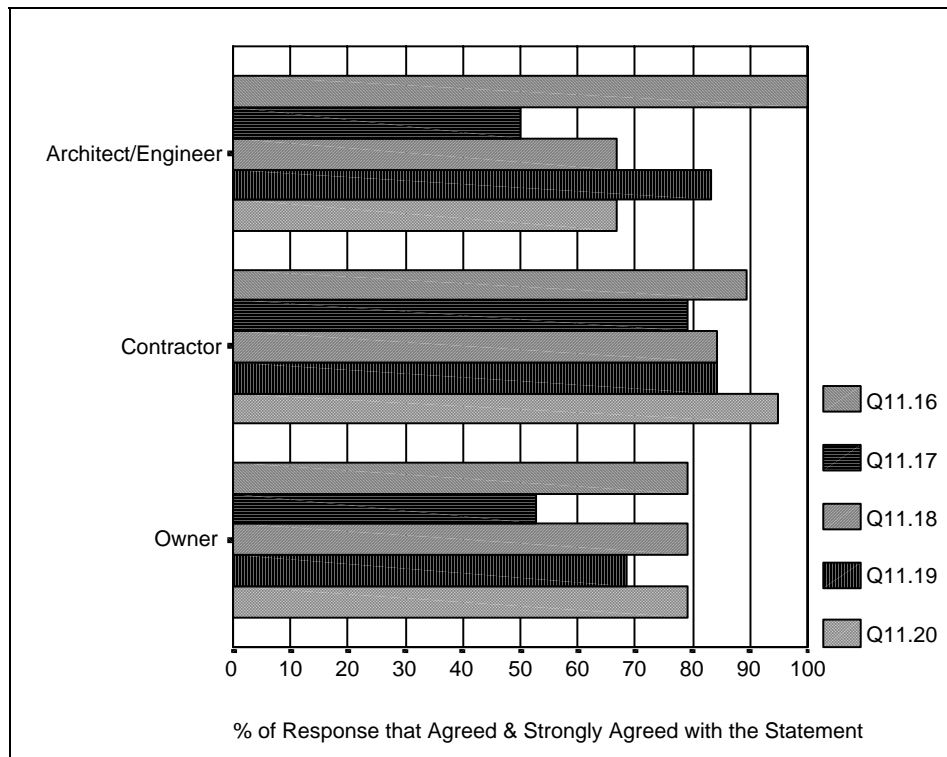
11.0 Construction										
Project Evaluation	Mean	Median	St d D	SA	A	N	D	SD	NA	
11.1 The GC/CM contractor's construction staff was independent of its CM/project staff.	3.20	4.00	1.16	4.9%	25.5%	8.8%	13.7%	4.9%	42.2%	
11.2 All GC/CM contractor self-performed work was done by staff independent of the GC/CM staff. Same as 11.1?	3.43	4.00	1.06	5.9%	22.5%	11.8%	6.9%	2.9%	50.0%	
11.3 Project RFIs were held to a minimum on this project.	3.24	4.00	1.15	5.9%	31.4%	14.7%	9.8%	7.8%	29.4%	
11.4 Project change orders were held to a minimum on this project.	3.38	4.00	1.08	6.9%	33.3%	14.7%	10.8%	4.9%	29.4%	
11.5 Nonconformance items were held to a minimum on this project.	3.64	4	0.89	9.8%	34.3%	18.6%	6.9%	1.0%	29.4%	
11.6 The GC/CM contractor was successful at coordinating all the subcontractors.	3.64	4	1.10	12.7%	38.2%	6.9%	9.8%	3.9%	28.4%	
11.7 The GC/CM contractor informed subcontractors of schedule changes that impacted their work.	3.79	4	0.95	11.8%	42.2%	7.8%	4.9%	2.9%	30.4%	
11.8 Subcontractor interferences were held to a minimum	3.61	4	0.90	7.8%	37.3%	14.7%	8.8%	1.0%	30.4%	
11.9 Subcontractors were treated fairly and ethically during construction.	3.90	4	0.83	12.7%	43.1%	9.8%	2.0%	2.0%	30.4%	
11.10 Minimum disruption of the owner's ongoing site operations occurred.	4.09	4	0.77	16.7%	38.2%	9.8%	0.0%	1.0%	33.3%	
11.11 This project had no labor disputes.	3.87	4	0.81	10.8%	41.2%	8.8%	3.9%	1.0%	34.3%	
11.12 This project was accident free.	3.48	4	0.96	6.9%	30.4%	16.7%	8.8%	2.0%	35.3%	
11.13 Wage laws were followed with no violations.	4.03	4	0.63	13.7%	40.2%	11.8%	0.0%	0.0%	34.3%	
11.14 Construction conformed to industry standards.	4.06	4	0.60	13.7%	48.0%	7.8%	1.0%	0.0%	29.4%	
11.15 Construction was built to the highest quality of workmanship.	3.75	4	0.95	12.7%	37.3%	9.8%	8.8%	1.0%	30.4%	
GC/CM Comparison to DBB										
11.16 The quality of this project was equivalent to similar DBB projects.	3.88	4	0.77	11.8%	34.3%	13.7%	2.9%	0.0%	37.3%	
11.17 The construction cost was lower than similar DBB projects.	3.39	3	1.00	7.8%	22.5%	20.6%	9.8%	2.0%	37.3%	
11.18 The owner experienced less construction disruptions than similar DBB projects.	3.71	4	0.77	6.9%	31.4%	15.7%	3.9%	0.0%	42.2%	
11.19 The construction schedule was shorter than similar DBB projects.	3.66	4	0.96	11.8%	26.5%	16.7%	6.9%	1.0%	37.3%	
11.20 Subcontractor interference and disputes were less than similar DBB projects.	3.70	4	0.83	8.8%	32.4%	15.7%	5.9%	0.0%	37.3%	

The percentage of responses that agreed or strongly agreed with the construction statements by evaluator type is displayed in the three graphs below.





The percentage of responses that agreed or strongly agreed with the construction statements comparing delivery systems by evaluator type is displayed in the graph below.



A second section of the survey allowed evaluators to rate the GC/CM contractor on the performance of 14 project construction attributes. A scale of 1 to 10 was used, as above.

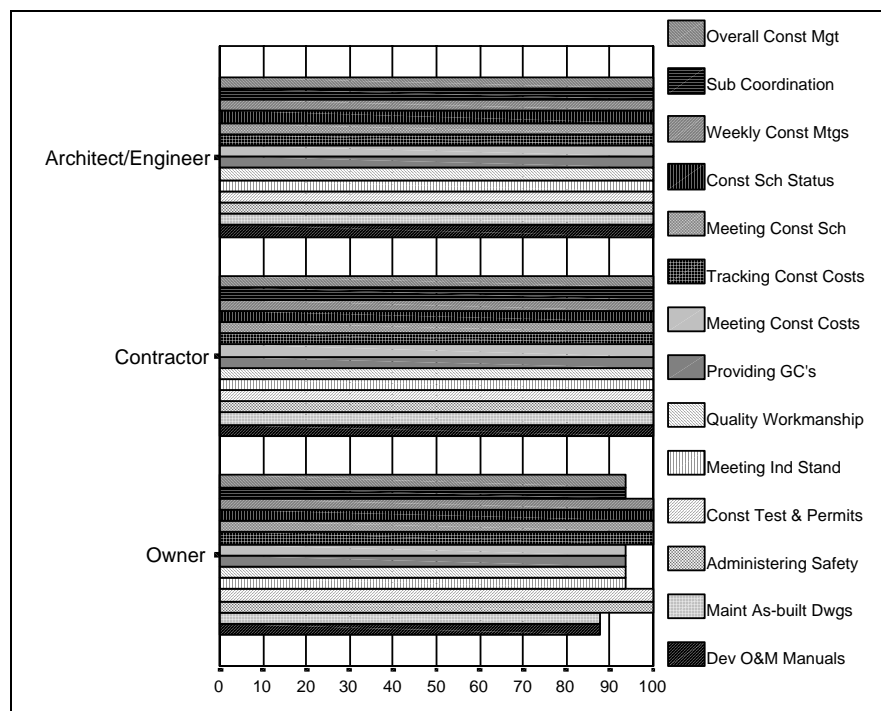
The overall mean for all 14 attributes is 7.3. The highest mean, 7.94, is for “*Administering Safety.*” 90% of the evaluators rated the contractor above a 6. The lowest mean, 6.88, is for “*Construction Subcontractor Coordination.*” 26% rated the GC/CM contractor with a 5 or less, and 74% rated it as a 6 or over. The table below provides descriptive statistics for all the attributes.

GC/CM Construction Performance Attributes

11.0 Construction														
Project Evaluation														
GC/CM Project Responsibilities														
On a scale of 1 to 10 rate the GC/CM contractor on the following project management responsibilities where 10 means it exceeded project expectations.														
	Count	Mean	Median	SD	Response Percentage									
					Did Not Meet					Met				
					1	2	3	4	5	6	7	8	9	10
11.21 Overall construction management.	71	7.01	8	2.37	2.8%	4.2%	4.2%	5.6%	5.6%	14.1%	5.6%	22.5%	29.6%	5.6%
11.22 Construction subcontract coordination.	73	6.88	8	2.43	2.7%	5.5%	5.5%	2.7%	9.6%	12.3%	8.2%	19.2%	28.8%	5.5%
11.23 Conducting weekly construction meetings.	73	7.62	8	1.7	0.0%	1.4%	1.4%	0.0%	6.8%	20.5%	9.6%	20.5%	31.5%	8.2%
11.24 Construction scheduling status.	73	7.14	8	2.02	1.4%	1.4%	2.7%	6.8%	5.5%	17.8%	12.3%	20.5%	26.0%	5.5%
11.25 Meeting construction schedules.	73	7.12	8	2.08	1.4%	2.7%	2.7%	6.8%	2.7%	17.8%	13.7%	21.9%	23.3%	6.8%
11.26 Tracking construction costs.	67	7.49	8	1.8	0.0%	0.0%	3.0%	6.0%	4.5%	17.9%	4.5%	29.9%	26.9%	7.5%
11.27 Meeting construction budgeted costs.	64	7.30	8	2.17	1.6%	3.1%	0.0%	7.8%	7.8%	14.1%	4.7%	25.0%	25.0%	10.9%
11.28 Providing general conditions as per contract.	70	7.33	8	2.04	1.4%	2.9%	1.4%	2.9%	5.7%	18.6%	11.4%	21.4%	24.3%	10.0%
11.29 Quality workmanship.	71	7.23	8	1.89	0.0%	0.0%	5.6%	5.6%	4.2%	19.7%	14.1%	16.9%	28.2%	5.6%
11.30 Meeting industry standards.	72	7.51	8	1.91	0.0%	1.4%	2.8%	0.0%	11.1%	19.4%	6.9%	18.1%	27.8%	12.5%
11.31 Construction testing and permitting.	65	7.69	8	1.83	1.5%	0.0%	0.0%	4.6%	4.6%	15.4%	12.3%	15.4%	36.9%	9.2%
11.32 Administering safety.	72	7.94	8	1.79	0.0%	1.4%	0.0%	2.8%	5.6%	13.9%	8.3%	22.2%	25.0%	20.8%
11.33 Maintaining as-built drawings.	66	7.18	7.5	2	1.5%	0.0%	4.5%	4.5%	6.1%	19.7%	13.6%	15.2%	28.8%	6.1%
11.34 Developing operation & maintenance manuals.	57	7.26	8	1.78	0.0%	0.0%	5.3%	1.8%	8.8%	19.3%	10.5%	21.1%	31.6%	1.8%

Note: The above includes GC/CM contractor's self-rating.

The percentage of responses above 5 (meets expectations) by evaluator type for construction performance attributes is displayed in the graph below.



Commissioning and Start-up

Section 12 of the project team survey asked the evaluator to rate statements on the GC/CM performance in project commissioning and start-up. In addition to rating the project, the evaluator was asked to compare the GC/CM project with a similar DBB project in that area. A scale of 1 to 5 was used, as above.

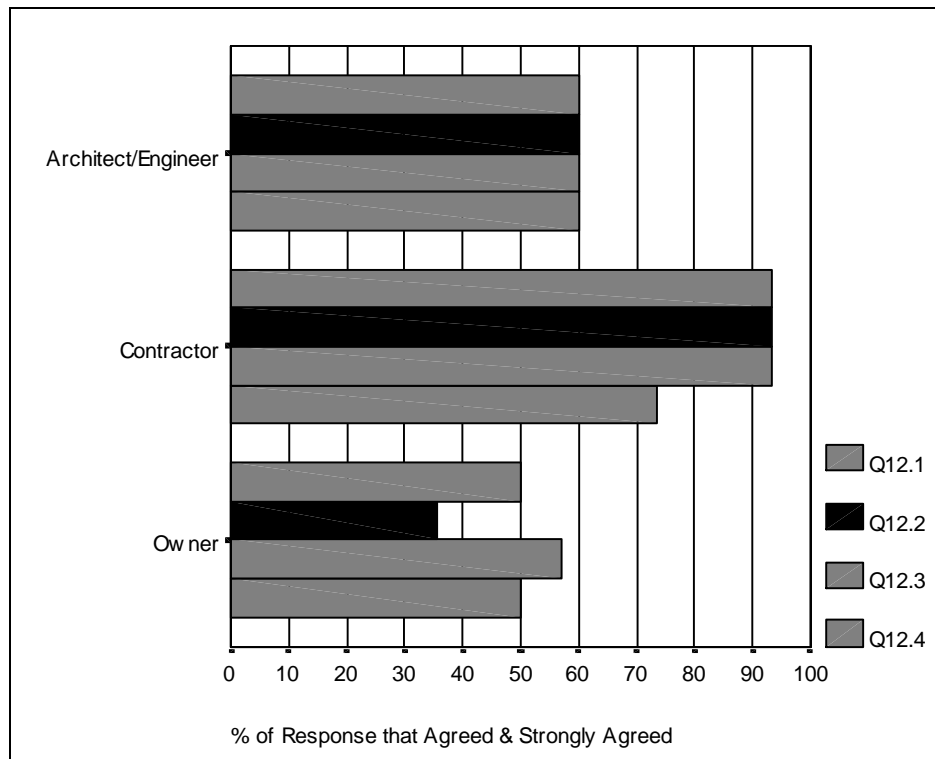
The overall mean for all the project commissioning and startup statements is 3.64. The overall median is 4, indicating that the evaluator tended to agree with all the project commissioning and start-up statements. The highest mean, 3.71, is for the statement, “*The owner’s staff was well trained by the GC/CM contractor.*” 68% of the evaluators agreed or strongly agreed with that statement. The lowest mean, 3.59, is for the statement, “*Startup difficulties were held to a minimum.*” 16% of the evaluators disagreed or strongly disagreed with this statement, and 65% agreed or strongly agreed with it.

In comparing the two delivery systems, for the only statement, “*Startup difficulties were minimal when compared to similar DBB projects,*” the overall mean is 3.53. Of those responding, 53% agreed or strongly agreed with that statement, and 6% disagreed or strongly disagreed with it. The table below provides descriptive statistics for all the statements.

GC/CM Team Survey: Commissioning and Start-up

12.0 Commissioning/Start-up										
Project Evaluation	Mean	Median	St d	D	A	N	D	SD	NA	
12.1 Startup difficulties were held to a minimum.	3.59	4	0.96	5.9%	25.5%	8.8%	6.9%	1.0%	52.0%	
12.2 Commissioning & startup were well coordinated by the GC/CM contractor.	3.64	4	1.06	7.8%	20.6%	14.7%	2.0%	2.9%	51.0%	
12.3 The owner’s operations staff was well trained by the GC/CM contractor.	3.71	4	0.58	2.0%	30.4%	13.7%	1.0%	0.0%	52.9%	
GC/CM Comparison to DBB										
12.4 Startup difficulties were minimal when compared to a similar DBB project.	3.53	4	0.71	2.9%	22.5%	19.6%	2.9%	0.0%	52.0%	

The percentage of responses that agreed or strongly agreed with the commissioning and startup statements by evaluator type is displayed in the graph below.



Acceptance and Closeout

Section 13 of the project team survey asked the evaluator to rate statements on the GC/CM performance in project acceptance and closeout. In addition to rating the project, the evaluator was asked to compare the GC/CM project with a similar DBB project in that area. A scale of 1 to 5 was used, as above.

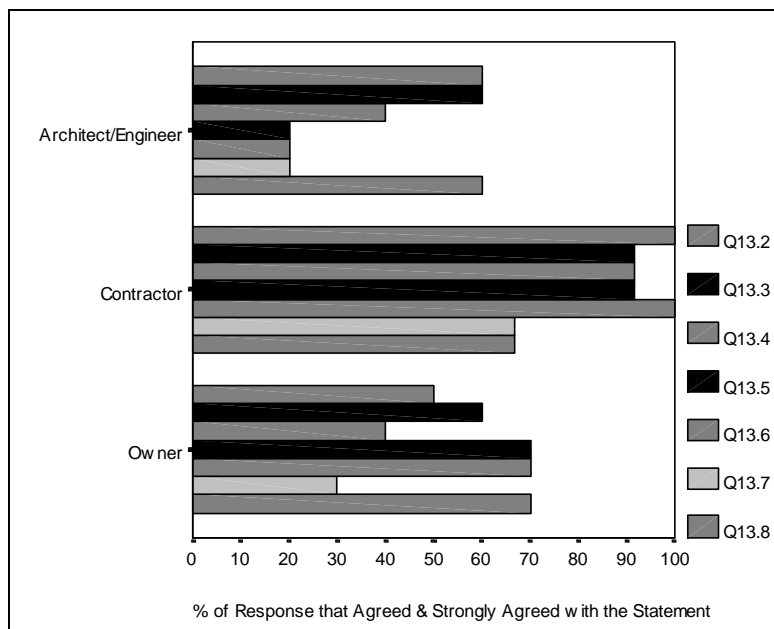
The overall mean for all the project acceptance and closeout statements is 3.59. The overall median is 4, indicating that the evaluator tended to agree with all the acceptance and closeout statements. The highest mean, 3.70, is for the statement, “*Operation & maintenance manuals were thorough and promptly turned over to the owner.*” 69% of the evaluators agreed or strongly agreed with that statement. The lowest mean, 3.46, is for the statement, “*Punchlist items were held to a minimum.*” 16% of the evaluators disagreed or strongly disagreed with that statement, and 64% agreed or strongly agreed with it.

In comparing the two delivery systems, the survey tested two statements. “*Overall construction claims were less than similar DBB projects*” has the highest mean, 3.62. Of those responding, 55% agreed or strongly agreed with that statement. “*Punchlist items were less than similar DBB projects*” has a mean of 3.23. 21% of the evaluators disagreed or strongly disagreed with that statement, and 40% agreed or strongly agreed with it. The table below provides descriptive statistics for all the statements.

GC/CM Team Survey: Acceptance and Closeout

13.0 Acceptance/Close-out										
Project Evaluation	Mean	Median	Std D	SA	A	N	D	SD	NA	
13.1 Punchlist items were held to a minimum.	3.46	4	0.89	1.0%	30.4%	9.8%	5.9%	2.0%	51.0%	
13.2 Punchlist items were quickly resolved by the GC/CM contractor.	3.61	4	0.95	4.9%	28.4%	7.8%	4.9%	2.0%	52.0%	
13.3 Operation & maintenance manuals were thorough and promptly turned over to the owner.	3.70	4	0.77	3.9%	25.5%	8.8%	3.9%	0.0%	57.8%	
13.4 As-built drawings were properly maintained during construction and promptly turned over to the owner.	3.59	4	0.87	3.9%	23.5%	10.8%	3.9%	1.0%	56.9%	
13.5 Final budget and invoice were promptly received after project acceptance.	3.67	4	0.83	3.9%	19.6%	7.8%	3.9%	0.0%	64.7%	
13.6 Overall this project experienced no construction claims.	3.52	4	1.13	5.9%	20.6%	7.8%	2.9%	3.9%	58.8%	
GC/CM Comparison to DBB										
13.7 Punchlist items were less than similar DBB projects.	3.23	3	0.91	2.9%	15.7%	17.6%	8.8%	1.0%	53.9%	
13.8 Overall construction claims were less than similar projects.	3.62	4	0.90	7.8%	17.6%	15.7%	4.9%	0.0%	53.9%	

The percentage of responses that agreed or strongly agreed with the acceptance and closeout statements by evaluator type is displayed in the graph below.



3.1.2 GC/CM Competitor Evaluations

The GC/CM Competitor Survey is a subjective survey that collects data from unsuccessful contractors who submitted proposals on GC/CM projects. The survey asks the contractors to rate statements on the GC/CM contracting process and statements that compare GC/CM to DBB. The survey used a scale of 1 to 5, as above.

52 surveys were returned from 8 firms representing 35 projects. This response is low and represents only a 21% survey return rate. Other data pertaining to the respondents is noted below:

- One contractor represents 35% of the responses.
- 87% of the firms were successful proposers on other GC/CM projects.
- The number of GC/CM projects that a respondent firm had proposed as contractor ranged from 1 to 29 with a mean of 17 and a median of 8.
- The number of GC/CM projects that a respondent firm had served as contractor ranged from 1 to 11 with a mean of 6 and a median of 5.
- The number of other projects of similar magnitude that a respondent firm had performed for the same owner agency ranged from 0 to 6 with a mean of 2.6 and a median of 3.
- 77% of the respondent firms had previously worked on a DBB project.

The overall mean for all the competitor statements is 4.02. The overall median is 4, indicating that the evaluators tended to agree with the statements. Overall the competitors felt that the GC/CM proposal process was fair:

- 98% agreed or strongly agreed that the RFP was clearly written and expectations were well defined.
- 96% agreed or strongly agreed that the RFQ solicitation and evaluation process was fair and objective
- 94% agreed or strongly agreed that the interview requirements were clearly written and expectations well defined.
- 92% agreed or strongly agreed that the interview process was fair and objective.
- 90% agreed or strongly agreed that the RFP process and evaluation was fair and objective.

The lowest mean, 3.42, is for the statement, *“The GC/CM selection process allowed the best qualified contractor be selected on this project.”* Only 10% of the evaluators disagreed or strongly disagreed with that statement, and 52% agreed or strongly agreed with it.

In comparing the two delivery systems, the overall mean is 4.19. The respondents overwhelmingly agreed with several of the comparison statements:

- 94% agreed or strongly agreed that the GC/CM selection process is as competitive as DBB.
- 94% agreed or strongly agreed that, for the surveyed project, the GC/CM selection process is a better method of selecting the best-qualified contractor than DBB.
- 92% agreed or strongly agreed that the GC/CM selection process is as fair to the construction community as DBB.
- 89% agreed or strongly agreed that the GC/CM selection process utilized on the surveyed project allowed the public to get the best value for its money compared to using DBB for similar projects.

The lowest mean, 3.86, is for the statement, *“Less bid/selection protests were made on this project as compared to similar DBB projects.”* No evaluator disagreed with that statement, and 60% agreed or strongly agreed with it. The table below provides descriptive statistics for all the statements.

GC/CM Selection Process									
Project Evaluation	Mean	Median	Std D	SA	A	N	D	SD	NA
1 The RFP was clearly written and expectations well defined.	4.13	4	0.49	17.3%	80.8%	0.0%	1.9%	0.0%	0.0%
2 The RFQ solicitation and evaluation process was fair and objective.	4.23	4	0.58	28.8%	67.3%	1.9%	1.9%	0.0%	0.0%
3 Interview requirements were clearly written and expectations well defined.	4.14	4	3.5	13.5%	80.8%	0.0%	0.0%	0.0%	5.8%
4 The Interview process and evaluation were fair and objective.	4.27	4	0.45	25.0%	67.3%	0.0%	0.0%	0.0%	7.7%
5 The RFP process and evaluation were fair and objective.	4.18	4	0.66	26.9%	63.5%	1.9%	3.8%	0.0%	3.8%
6 No bid/selection protests were made during or after the selection process.	3.79	4	0.78	21.2%	36.5%	42.3%	0.0%	0.0%	0.0%
7 The GC/CM selection process allowed the best qualified contractor be selected on this project.	3.42	4	0.75	1.9%	50.0%	38.5%	7.7%	1.9%	0.0%
GC/CM Comparison to DBB									
1 The GC/CM selection process is as fair to the construction community as the DBB selection process.	4.04	4	0.41	7.7%	84.6%	0.0%	1.9%	0.0%	5.8%
2 The GC/CM selection process is as competitive as the DBB selection process.	4.29	4	0.46	26.9%	67.3%	0.0%	0.0%	0.0%	5.8%
3 Less bid/selection protests were made on this project as compared to similar DBB projects.	3.86	4	0.64	11.5%	48.1%	23.1%	0.0%	0.0%	17.3%
4 For this type of project the GC/CM selection process is a better method of selecting the best qualified contractor than the DBB method of selection.	4.47	4	0.5	44.2%	50.0%	0.0%	0.0%	0.0%	5.8%
3 The GC/CM selection process utilized on this project allowed the public to get the best value for its money when compared to using the DBB method for similar projects.	4.31	4	0.8	40.4%	48.1%	1.9%	1.9%	1.9%	5.8%

3.1.3 GC/CM Subcontractor Competitor Evaluations

The GC/CM Subcontractor Competitor Survey is a subjective survey that collects data from unsuccessful subcontractors who bid on GC/CM workpackages. The survey asks the subcontractors to rate statements on the GC/CM subcontracting process and statements comparing that process to DBB. The survey used a scale of 1 to 5, as above.

30 surveys were returned from 16 firms representing 15 projects. This response is very low and represents only a 5% survey return rate. Other data pertaining to the respondents is noted below:

- Two subcontractors represent 34% of the responses.
- 43% of the firms were also successful subs on other GC/CM projects.
- Two of the subcontractors were also the GC/CM contractor on the project
- Surveys were returned from 12 different subcontractor types.
- The number of projects that a respondent firm had bid on in Washington ranged from 0 to 20 with a mean of 6.
- The number of GC/CM projects that a respondent firm had worked on as a subcontractor in Washington ranged from 0 to 10 with a mean of 2.
- The number of projects of similar magnitude that a respondent firm had worked for the owner agency ranged from 0 to 100 with a mean of 9.4 and a median of 1.5.
- 63% of the respondent firms had previously worked on a DBB project.
- The number of workpackages that the respondent firm bid on per project ranged from 1 to 5 with a mean of 1.5 and a median of 1. The number of workpackages that a respondent firm was awarded on a project ranged from 0 to 4 with a mean of 0.3 and a median of 0.
- Comments in Appendix J only reflect those subcontractors who chose to submit comments, and do not reflect the mean response of the group. Statistical results of the survey should be used in making any evaluations.

The overall mean for all the subcontractor competitor statements is 3.39. The highest mean, 3.68, is for the statement, “*The GC/CM contractor informed workpackage bidders that it would compete for the work.*” 37% of the evaluators agreed or strongly agreed with that statement. The lowest mean, 3.03, is for the statement, “*The method of subcontractor workpackage solicitation and evaluation was fair and objective.*” 37% of the evaluators disagreed or strongly disagreed with that statement, and 53% agreed or strongly agreed with it. 67% of the evaluators agreed or strongly agreed with the statement, “*The project was broken into appropriate workpackages.*”

In comparing the two delivery systems, the overall mean is 3.38. The highest mean, 3.52, is for the statement, “*Subcontracting was open to public bidding as similar DBB projects.*” 50% agreed or strongly agreed with this statement, and 13% disagreed. The lowest mean, 3.13, is for the statement, “*The utilization and involvement of MWBE’s was easier than DBB projects.*” 43% of the evaluators agreed or strongly agreed with the statement, “*In the selection process the subcontractors were treated as fairly and ethically as similar DBB projects.*” The table below provides descriptive statistics for all the statements.

Subcontract Workpackage Development										
Project Evaluation	Mean	Median	Std D	SA	A	N	D	SD	NA	
1 Subcontracting was performed per RCW requirements.	3.27	3.50	1.00	3.3%	40.0%	26.7%	10.0%	6.7%	13.0%	
2 This project was broken into appropriate work packages.	3.59	4.00	1.01	6.7%	60.0%	10.0%	6.7%	6.7%	10.0%	
3 All appropriate elements of the project were publicly bid.	3.64	4.00	0.73	6.7%	53.3%	26.7%	6.7%	0.0%	6.7%	
4 The method of subcontract workpackage solicitation and evaluation process was fair and objective.	3.03	4.00	1.35	6.7%	46.7%	6.7%	16.7%	20.0%	3.3%	
5 In the selection process subcontractors were treated fairly and ethically.	3.15	4.00	1.46	10.0%	43.3%	6.7%	3.3%	23.3%	13.3%	
6 Any GC/CM self-performance was done in accordance to RCW requirements	3.44	3.00	0.62	3.3%	20.0%	36.7%	0.0%	0.0%	40.0%	
7 The GC/CM contractor informed workpackage bidders that it would compete for the work.	3.68	4.00	0.67	6.7%	30.0%	26.7%	0.0%	0.0%	36.7%	
8 Contract-specified MWBE requirements, if any, were met.	3.27	3.00	0.46	0.0%	13.3%	36.7%	0.0%	0.0%	50.0%	
9 The GC/CM contractor's form of subcontract adequately addressed subcontractors' involvement in a GC/CM project.	3.47	4.00	0.34	3.3%	33.3%	16.7%	10.0%	0.0%	36.7%	
GC/CM Comparison to DBB										
1 Subcontracting was as open to public bidding as similar DBB projects.	3.52	4.00	0.85	3.30%	47%	13.3%	13.3%	0.0%	23.3%	
2 In the selection process subcontractors were treated as fairly and ethically as similar DBB projects.	3.48	4.00	0.81	0.0%	43.3%	20.0%	3.3%	3.3%	30.0%	
3 The utilization and involvement of MWBEs was easier than DBB projects.	3.13	3.00	0.50	0.0%	10%	40%	3%	0%	47%	

3.1.4 Project Evaluation Data

The project evaluation survey, completed by the owner/agency’s project representative, collects project and performance data in the following areas:

- Schedule
- Cost
- Changes
- GC/CM Selection Process
- Subcontract Workpackages
- Safety
- Quality
- MWBE

Data collected includes as-planned v. as-built and contract v. final costs. Changes and claims are evaluated as percentages of total project cost. The survey return rate is 67%; 33 project evaluation surveys were returned out of a possible 49. Detailed project data for all areas can be found in Appendices B through I.

Schedule

For all the projects reported, the GC/CM selection process on average took 17 weeks with a median of 13 weeks. For the agencies responding to the survey, 75% reported that their project was completed on time and 91% reported that utilizing the GC/CM delivery method resulted in project schedule improvements. See appendix B for additional schedule data.

Cost

Project sizes in the study range from \$5.5 million to \$517 million; 83% of the projects studied are under \$80 million. For the agencies responding to the survey, 76% reported that their project was completed within budget and 80% reported that utilizing the GC/CM delivery method resulted in budget improvements.

The combined total of the GC/CM fee, preconstruction services, and general conditions as a percentage of the MACC range from 6% to 20%, with a mean of 9% and a median of 8%. The combined total averages 5% of total project costs. The average fee is 3.5% of the MACC, preconstruction services average 1.1%, and general conditions average 4.8%. 74% of the projects established pre-MACC services in their invitations to bid.

Every project utilized a contingency; the mean set aside is 8.6% of the total project budget. 63% of the projects utilized cost incentives; the average split is 64% for the owner and 36% for the GC/CM contractor with the median split 50/50. 54% reported that buyout savings are not included in cost incentives. Incentives paid out range from nothing to 1.3% of the total project cost, with a mean of 0.24%. See appendix C for additional cost data.

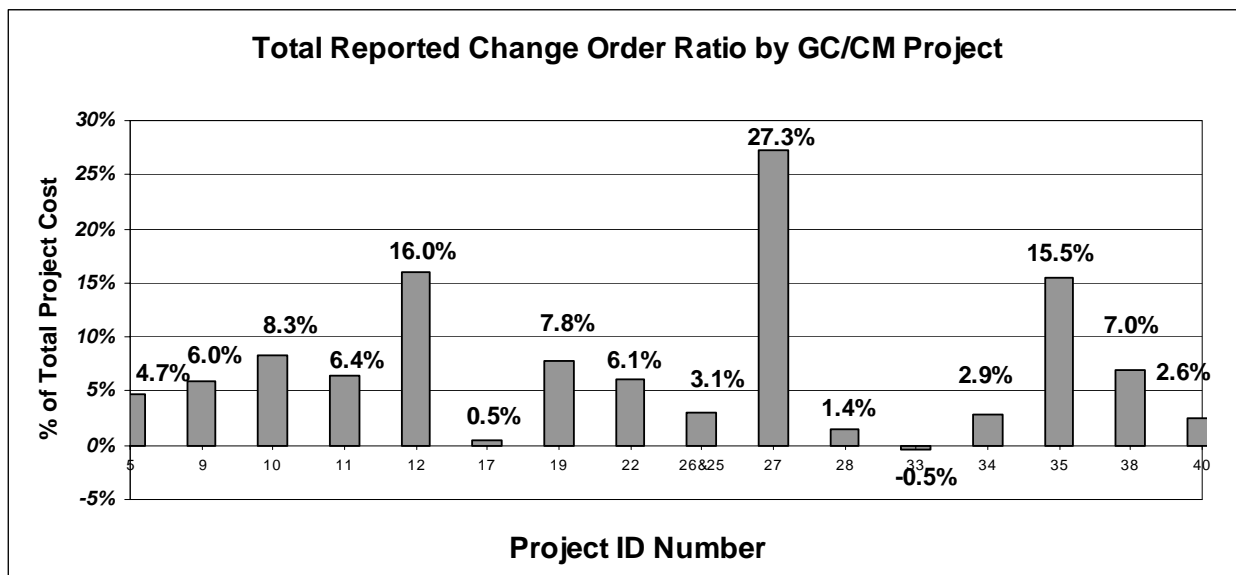
Changes

Half of the project representatives reported that the GC/CM method resulted in less RFIs. 14 projects reported that the number of RFIs range from 188 to 2653, with a mean of 912 and a median of 410.

56% of the project representatives reported that the GC/CM method did not result in less change orders, but 81% reported that the change orders were kept within reason. The project change order ratio, or percentage of cost growth resulting from changes, ranges from -0.46% to 27.3%, with a mean of 7.2% and a median of 6%. 72% of the projects reported change growth between -1% and 9%, and 56% of the projects reported cost growth over 5%. The following studies reported change order statistics to benchmark against:

- CII Research Summary 133-1 (1997), investigating changes on 351 private and public projects, reported a median cost growth of 4.8% for DBB projects, with 49% of the projects greater than 5%. It also reported that there is a 50% likelihood of a DBB project realizing cost growth between 2% and 11%. “CM at risk” (i.e., GC/CM) projects reported a median of 3.4%, with 44% of the projects over 5% and a 50% likelihood of realizing cost growth between 0% and 9%.
- Engan (1996) investigated change orders on 231 UW construction projects. She reported that the mean change order ratio for DBB projects under \$10 million was 15% and the median was 9%.
- National Research Council’s Building Research Board’s committee on construction change orders (1986) reported—after looking at 59,155 private projects, 2200 VA projects, and \$2.5 billion in Federal projects—that “contract modifications which increase contract value between 5 and 10 percent would reasonably be expected on most construction projects.”

The chart below reports the change order ratio for the 16 projects that supplied change order data.



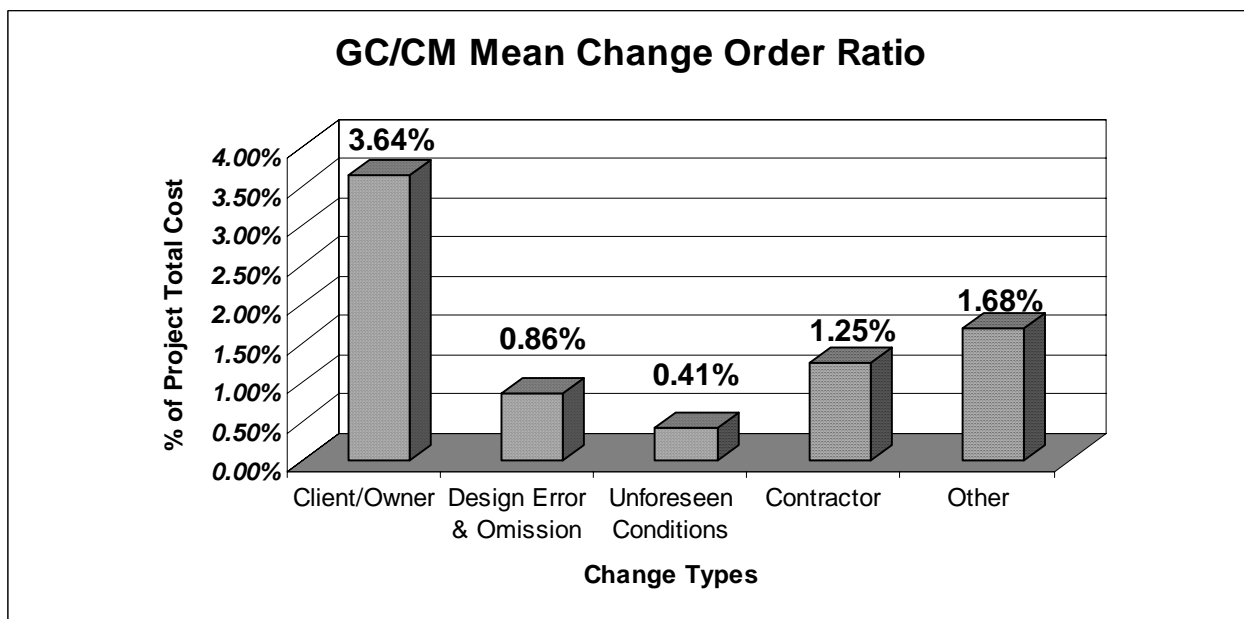
In reviewing change order ratios by type, it was reported:

- Client/owner-caused changes: Mean 3.6%, median 2%
- Design-caused changes: Mean 0.9%, median 0.6%
- Unforeseen condition-caused changes: Mean 1.3%, median 0.7%
- Contractor-caused changes: Mean 0.4%, Median 0%
- Other-caused change: Mean 1.68%, median 0.1%

For comparison, Engan (1996) reported:

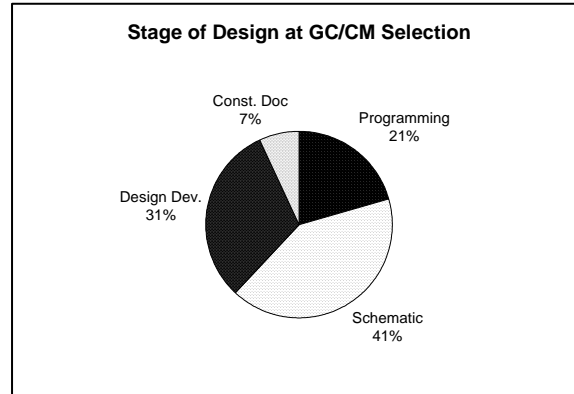
- Client/owner-caused changes: Mean 5%, median 0%
- Design-caused changes: Mean 3%, median 0%
- Unforeseen condition-caused changes: Mean 5%, median 1%

The chart below reports the change order ratio for the 16 projects by change type. See appendix D for additional change data



GC/CM Selection Process

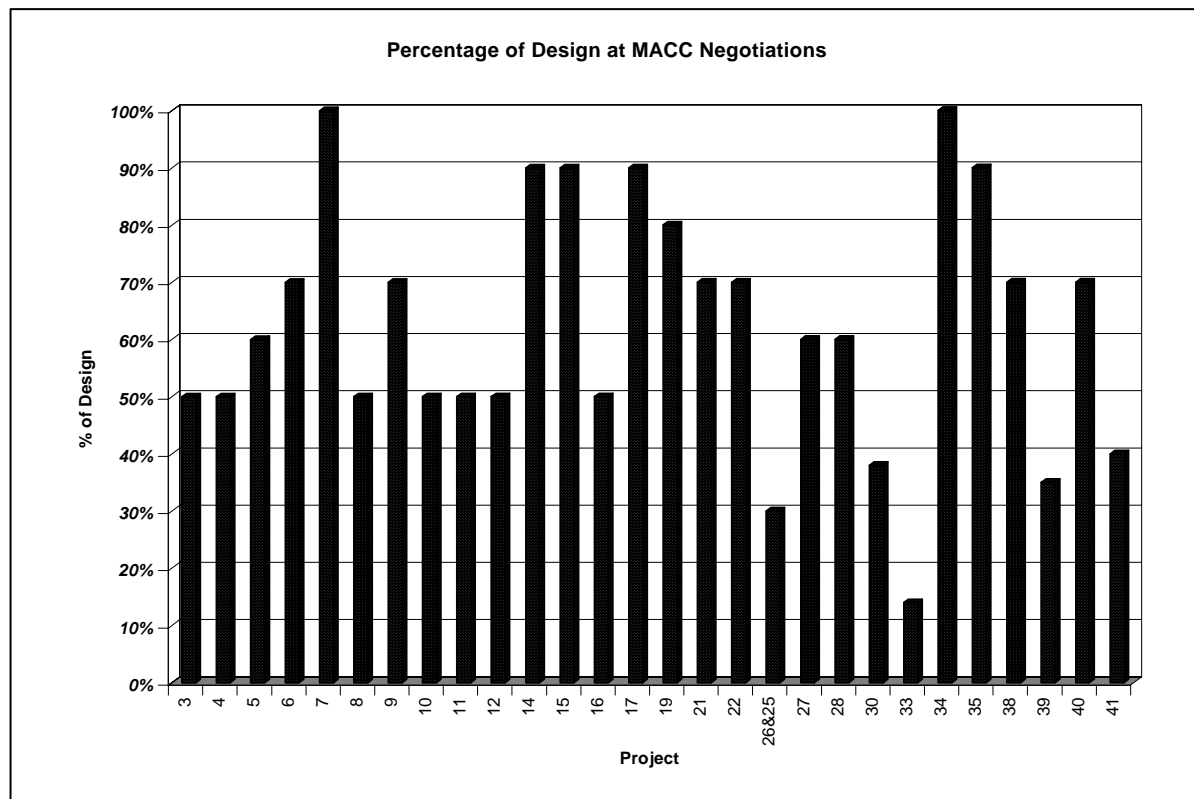
80% of the project representatives reported that there was a public notice process for the GC/CM project, and 93% reported that there was no public protest to using the method. 41% of the projects were in design development when the GC/CM contractor was selected. The following graph depicts the stages of design at GC/CM selection and the percentages of projects at those stages.



The percentage of design completion at MACC negotiation range from 14% to 100%, with a mean of 62% and a median of 60%. See the chart below.

The following number of firms participated in the GC/CM selection process:

- RFQ: 4 to 13 firms, with a median of 7
- Interview: 3 to 8 firms, with a median of 4
- RFP: 2 to 5 firms, with a median of 3
- A project reported that MACC negotiations failed with the first firm and concluded with a second firm.



The following summarizes the results of the GC/CM selection process:

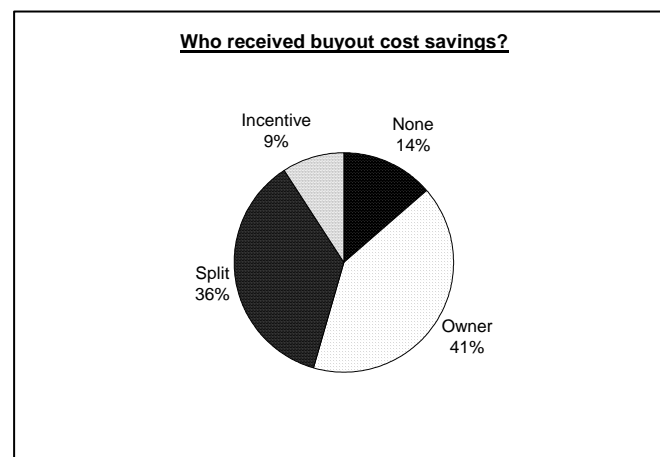
- 52% of the time the firm with the highest points at the end of the interview process was not the same firm with the highest points at the end of the RFQ process.
- 76% of the time the firm with the highest points at the end of the RFP process was the same firm with the highest points at the end of the interview process.
- 78% of the time the firm with the lowest-priced proposal was selected.
- The price difference between the selected contractor proposal the second contractor ranges from –1.6% to 23%, with a mean of 6% and a median of 4%.
- 93% of the projects reported no selection protests.

71% of the owner representatives reported that the utilizing the GC/CM method resulted in design improvements on their projects.

84% of the projects reported no disputes with the owner, and 79% reported no claims. Of the 5 projects reporting claims, the range is from 1 to 27 claims, with a mode (most frequent) of 1. The claim percentage of total project costs ranges from 0% to 4.8%, with a mean of 0.5% and a median of 0%. See appendix E for additional GC/CM selection process data.

Subcontract Workpackages

The average number of work packages on a project is 28, with a median of 25. The average number of workpackages bid by the GC/CM contractor is 2.8, with a median of 0, and the average award to the GC/CM contractor is 1.2, with a median of 0. 67% of the projects reported no subcontractor protests during the selection process, and 53% of the projects reported subcontractor claims. On 41% of the projects, the owner received the subcontractor buyout savings; see the chart below. See appendix F for additional subcontracting data.



Safety

64% of the projects reported no lost-time accidents, with a mean of 0.6 accidents and a median of 0. Of the projects reporting accidents, the hours lost range from 2 to 152 hours. See appendix G for additional safety data.

Quality

The following summarizes the response to the project quality questions:

- 100% of the projects reported that all program requirements were satisfied.
- 94% of the projects reported that punchlist items were within reason for the type of project.
- 94% of the projects reported that the owner's operators were properly trained prior to turnover.
- 92% of the projects reported the as-builts and O&M manuals were satisfactory.
- 76% of the projects reported that design, material, and workmanship quality met expectations.
- 67% of the projects reported that they had major commissioning problems. *The result may be due to a survey design flaw.*
- 54% of the projects reported that there were excessive callbacks during the warranty period. *The result may be due to a survey design flaw.*

See appendix H for additional quality data.

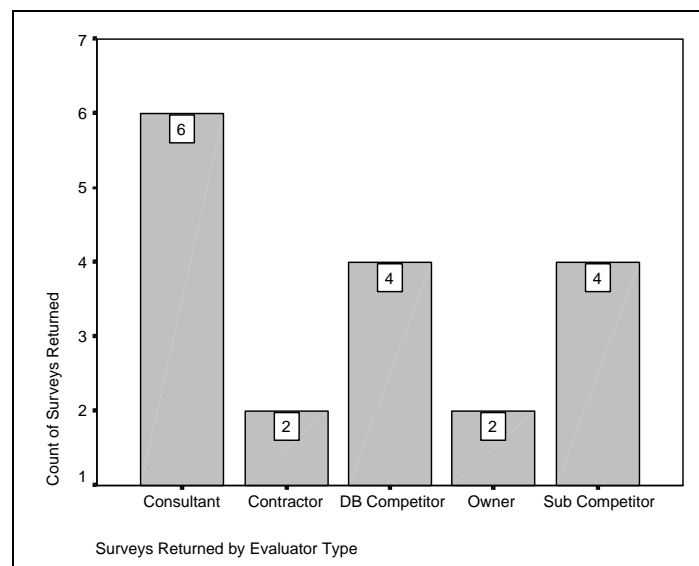
MWBE

72% of the projects had MWBE requirements, and 92% of the projects met them. See appendix I for additional MWBE data.

3.2 Design Build

This section reports the results of the surveys on DB projects. The DB project response total was extremely low; only seven public projects have utilized this method of delivery in Washington. In addition, three of those were GA projects performed prior to the enactment of RCW 39.10.050. The researchers feel that the limited data on these projects are not sufficient to make any statistical measurement of the success or failure of the use of DB as a delivery method. This section provides a brief synopsis only on the overall response to the use of DB. Comments from the surveys are displayed in Appendix J.

DB Survey Type Response



3.2.1 DB Team Evaluations

The following reports a summary of the subjective data obtained from the DB Team Surveys. The project team survey asked project participants to evaluate the performance of the project and to compare the delivery method used to the traditional DBB delivery method. The participants include the owner/agency representative, the design-build contractor, consultants, and subcontractors.

Project Performance

Project team participants were asked to evaluate the overall project performance on a scale of 1 to 10, as above. Examples of exceeding project expectations would be higher quality, lower cost, and a faster schedule. The following are the performance attributes that were evaluated:

- Project Cost
- Project Schedule
- Meeting Owner's Project Requirements
- Project Performance and Quality
- Public Project Value
- Project Safety

The mean of all the attributes is 8.1, and all the attributes are at least 2.5 points above 5 (meeting expectations). The highest-rated attribute is public value with a mean of 8.7; the lowest is schedule performance with a mean of 7.5.

The owner's highest-rated attribute is public value with a mean of 9; the lowest is schedule performance with a mean of 8. The DB contractor's highest-rated attributes are safety and schedule performance with a mean of 9.5; the lowest is owner's requirements with a mean of 8.5. The overall mean was affected by the overall lower rating of the consultants who represent 60% of the responses. No subcontractors responded to the team survey. The table below provides descriptive statistics for all attributes.

DB Team Survey - Project Performance Evaluations							
Evaluator Type		Cost Performance	Schedule Performance	Owner's Requirements	Performance & Quality	Public Value	Safety
Consultant	N	5	6	6	6	6	5
	Mean	7.20	6.67	7.83	7.33	8.50	8.00
	Median	8.00	7.00	8.00	8.00	8.50	9.00
Contractor	N	2	2	2	2	2	2
	Mean	9.00	9.50	8.50	9.00	9.00	9.50
	Median	9.00	9.50	8.50	9.00	9.00	9.50
Owner	N	2	2	2	2	2	2
	Mean	8.50	8.00	8.50	8.50	9.00	8.50
	Median	8.50	8.00	8.50	8.50	9.00	8.50
Total	N	9	10	10	10	10	9
	Mean	7.89	7.50	8.10	7.90	8.70	8.44
	Median	9.00	9.00	8.50	8.00	9.00	9.00

The six project performance attributes were compared by the evaluator to similar DBB projects on the same scale of 1 to 10. The overall evaluation is a mean of 7.2, and all the attributes are at least 2.1 points above 5 (performance equal to DBB). The highest-rated attribute is owner's requirement with a mean of 7.4; the lowest are schedule and public value with a mean of 7.1. The table below provides descriptive statistics for all attributes.

The owner's highest-rated comparison attribute is schedule with a mean of 7; the lowest is public value with a mean of 3.5. The DB contractor's highest-rated comparison attributes are schedule, owner's requirement,

performance and quality, public value, and safety with a mean of 9; the lowest is cost with a mean of 8. The table below provides descriptive statistics for all attributes.

DB Team Survey - DB Comparison to DBB Project Performance							
Evaluator Type		Cost	Schedule	Owner's Requirements	Performance & Quality	Public Value	Safety
Consultant	N	5	6	6	5	6	5
	Mean	7.60	6.83	7.50	7.20	8.00	7.60
	Median	8.00	6.00	7.50	8.00	8.50	8.00
Contractor	N	1	1	1	1	1	1
	Mean	8.00	9.00	9.00	9.00	9.00	9.00
	Median	8.00	9.00	9.00	9.00	9.00	9.00
Owner	N	2	2	2	2	2	2
	Mean	6.50	7.00	6.50	6.50	3.50	5.00
	Median	6.50	7.00	6.50	6.50	3.50	5.00
Total	N	8	9	9	8	9	8
	Mean	7.37	7.11	7.44	7.25	7.11	7.13
	Median	8.00	7.00	8.00	8.50	8.00	7.50

Team Performance

Project participants were asked to evaluate the owner's representative and the DB Contractor on the team performance of each. On a scale of 1 to 10, a response of 1 indicates that the team member was adversarial or avoided dealing with team issues and 10 indicates that the member was collaborative and worked for the interest of the team and project

The following are the four team performance attributes that were evaluated:

- Communications
- Problem Solving
- Overall Trust and Candor
- Meeting Project Goals

For all the team attributes, the mean is at least 3 points above 5. The owner representative's overall mean is 8.4, and the DB contractor's 8.1. The highest-rated attribute for the owner is meeting project goals with a mean of 8.6, and the lowest is overall trust and candor with a mean of 8.3. The-highest rated attribute for the DB contractor is meeting project goals with a mean of 8.2, and the lowest is communications, problem-solving, and trust and candor with a mean of 8. The table below provides descriptive statistics for all attributes for each team member. Self-performance is included in the calculations.

DB Team Survey - Project Team Performance			
	Count	Mean	Median
	No. of Surveys		
Owner's Communications	9	8.44	8.00
Contractor's Communications	10	8.00	8.50
Owner's Problem Solving	8	8.38	8.50
Contractor's Problem Solving	10	8.00	8.50
Owner's Overall Trust/Candor	8	8.25	8.00
Contractor's Overall Trust & Candor	10	8.00	8.50
Owner's Meeting Project Goal	7	8.57	9.00
Contractor's Meeting Project Goals	9	8.22	9.00

The team performance attributes were compared by the evaluator to similar DBB projects on the same scale of 1 to 10. For all the team attributes, the mean is at least 1.9 points above 5 (performance equal to DBB). The owner representative's overall mean is 7.9, and the DB contractor's 7.2. The highest-rated attribute for the owner is meeting project goals with a mean of 8.2, and the lowest is problem-solving with a mean of 7.1. The highest-rated attribute for the DB contractor is trust and candor with a mean of 7.4, and the lowest is communications with a mean of 6.9. The table below provides descriptive statistics for all attributes providing a comparison to DBB for each team member. Self-performance is included in the calculations.

DB Team Survey - DB Comparison to DBB Project Performance			
	Count	Mean	Median
	No. of Surveys		
Owner's Communications	6	7.67	8.00
Contractor's Communications	7	6.86	7.00
Owner's Problem Solving	5	7.80	8.00
Contractor's Problem Solving	7	7.14	7.00
Owner's Overall Trust/Candor	5	7.80	8.00
Contractor's Overall Trust & Candor	7	7.43	8.00
Owner's Meeting Project Goal	5	8.20	8.00
Contractor's Meeting Project Goals	7	7.29	8.00

3.2.2 DB Competitor Evaluations

The DB Competitor Survey is a subjective survey that collects data from unsuccessful contractors who submitted proposals on DB projects. The survey asks the contractors to rate statements on the DB contracting process and statements that compare DB to DBB. The survey uses a scale of 1 to 5.

Four responses were received from three firms on three different projects. One contractor represents 50% of the responses, and that firm was also a successful DB contractor on another project. This response is low and represents only a 19% survey return rate. The overall mean is 3.5. The table below provides descriptive statistics for the DB competitor survey.

DB Competitor Survey Sorted by Mean Response				
	N	Minimum	Maximum	Mean
The Interview process and evaluation were fair and objective.	4	4	4	4.00
Interview requirements were clearly written and expectations well defined.	4	4	4	4.00
The RFQ solicitation and evaluation process was fair and objective.	4	4	4	4.00
The RFP was clearly written and expectations well defined.	4	4	4	4.00
No bid/selection protests were made during or after the selection process.	4	3	4	3.50
The RFP process and evaluation were fair and objective.	4	3	4	3.50
The jury was qualified to score and make D/B selection.	3	3	4	3.33
The alternative selection process allowed the best qualified contractor be selected on this project.	4	3	4	3.25
The honorarium provided was fair and reasonable.	2	2	2	2.00

In comparing the two delivery systems, the overall mean is 4.1. The table below provides comparison descriptive statistics for the DB competitor survey.

DB Competitor Survey Sorted by Mean Response Comparing the DB Selection Process to DBB				
	N	Minimum	Maximum	Mean
The alternative selection process utilized on this project allowed the public to get the best value for its money when compared to using the DBB method for similar projects.	3	4	5	4.33
For this type of project the alternative selection process is a better method of selecting the best qualified contractor than the DBB method of selection.	4	4	5	4.25
The alternative selection process is as competitive as the DBB selection process.	4	4	4	4.00
The alternative selection process is as fair to the construction community as the DBB selection process.	4	4	4	4.00
Less bid/selection protests were made on this project as compared to similar DBB projects.	4	3	4	3.75

4. References

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HB 1070 (Ch. 209, Laws of 2000). “School District Project Review Board.”

HB 2535 (Ch. 185, Laws of 2000). “Public Improvement Contracts—Retained Funds.”

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SHB 1425 (Ch. 376, Laws of 1997). “Alternative Public Works Contracting Procedures.”

Appendix A - GC/CM Project Data

		Evaluator Type							Total
Evaluator Code		Architect/ Engineer	Consultant	Contractor	GCCM Competitor	Owner	Sub Competitor	Sub	
1	Count % within Evaluator Type					32 100.0%			32 17.4%
2	Count % within Evaluator Type			6 18.8%	6 11.5%				12 6.5%
3	Count % within Evaluator Type			5 15.6%	2 3.8%				7 3.8%
4	Count % within Evaluator Type		1 16.7%						1 .5%
5	Count % within Evaluator Type	1 7.7%							1 .5%
6	Count % within Evaluator Type						5 16.7%		5 2.7%
7	Count % within Evaluator Type				1 1.9%				1 .5%
8	Count % within Evaluator Type						1 3.3%	4 21.1%	5 2.7%
9	Count % within Evaluator Type		1 16.7%						1 .5%
11	Count % within Evaluator Type			5 15.6%	11 21.2%				16 8.7%
12	Count % within Evaluator Type						1 3.3%		1 .5%
14	Count % within Evaluator Type		1 16.7%						1 .5%
15	Count % within Evaluator Type			1 3.1%	9 17.3%		1 3.3%		11 6.0%
16	Count % within Evaluator Type						1 3.3%	1 5.3%	2 1.1%
17	Count % within Evaluator Type						2 6.7%		2 1.1%
18	Count % within Evaluator Type	5 38.5%							5 2.7%
19	Count % within Evaluator Type						1 3.3%		1 .5%
20	Count % within Evaluator Type			1 3.1%	2 3.8%		1 3.3%		4 2.2%
21	Count % within Evaluator Type						1 3.3%	1 5.3%	2 1.1%
22	Count % within Evaluator Type	2 15.4%							2 1.1%
23	Count % within Evaluator Type	1 7.7%							1 .5%
24	Count % within Evaluator Type			11 34.4%	18 34.6%				29 15.8%
25	Count % within Evaluator Type						1 3.3%	1 5.3%	2 1.1%
26	Count % within Evaluator Type						1 3.3%		1 .5%
27	Count % within Evaluator Type						4 13.3%		4 2.2%
28	Count % within Evaluator Type			2 6.3%	3 5.8%				5 2.7%
29	Count % within Evaluator Type						5 16.7%		5 2.7%
30	Count % within Evaluator Type						2 6.7%	2 10.5%	4 2.2%
31	Count % within Evaluator Type						2 6.7%	1 5.3%	3 1.6%
32	Count % within Evaluator Type		3 50.0%						3 1.6%
34	Count % within Evaluator Type						1 3.3%	3 15.8%	4 2.2%
35	Count % within Evaluator Type							4 21.1%	4 2.2%
36	Count % within Evaluator Type							1 5.3%	1 .5%
37	Count % within Evaluator Type	1 7.7%							1 .5%
38	Count % within Evaluator Type			1 3.1%					1 .5%
39	Count % within Evaluator Type							1 5.3%	1 .5%
40	Count % within Evaluator Type	1 7.7%							1 .5%
41	Count % within Evaluator Type	1 7.7%							1 .5%
42	Count % within Evaluator Type	1 7.7%							1 .5%
Total	Count % within Evaluator Type	13 100.0%	6 100.0%	32 100.0%	52 100.0%	32 100.0%	30 100.0%	19 100.0%	184 100.0%

GC/CM Agency Project Information Appendix

Appendix B – Schedule

Appendix C – Cost

Appendix D – Changes

Appendix E - GC/CM Process

Appendix F – Subcontracting

Appendix G – Safety

Appendix H – Quality

Appendix I – MWBE

Appendix B - GC/CM Schedule

GC/CM Project Data Table - Schedule

Project Code	Agency Code	Prj Type	Current Phase	Overall GCCM Selection Process			Was project completed on time?	Did method result in Sch. improvements?
				Actual		Contract Approval		
				Start	Weeks	/ NTP - Date		
2	10	6	SD	7/1/1999	30	2/14/2000	NC	Y
3	10	4	DD	2/1/1999	21	3/1/2000	NC	NC
4	10	6	CD	2/1/1999	13	6/1/1999	NC	NC
5	10	6	Closeout	9/23/1998	27	3/29/1999	Y	Y
6	10	4	Construction	7/15/1998	17	11/15/1998	NC	NC
7	10	13	Construction	NC	NC	NC	NC	NC
8	10	4	Construction	2/1/1998	9	8/1/1998	NC	Y
9	10	9	Phase 2	5/14/1998	67	8/30/1999	NC	Y
10	10	6	Acceptance	5/8/1996	16	1/1/1997	Y	Y
11	10	9	Closeout	11/30/1995	36	8/9/1996	N	Y
12	10	6	Closeout	3/1/1995	9	11/7/1995	N	Y
13	9	6	Hold-DD	NC	NC	NC	NC	NC
14	9	6	C-70%	3/11/1998	16	7/15/1998	NC	Y
15	9	6	C-6/00	1/9/1999	10	3/18/1999	NC	NC
16	9	6	Const	9/1/1998	9	11/1/1998	NC	Y
17	9	6	C-30%	6/1/1998	13	9/1/1998	NC	Y
19	7	10	Complete	5/1/1997	17	9/1/1997	Y	Y
21	2	8	CD	9/27/1999	7	3/6/2000	NC	NC
22	2	7	Closeout	1/5/1999	5	2/16/1999	Y	Y
26&25	1	6	Const	11/5/1997	11	1/20/1998	Y	N
27	1	3	Complete	6/27/1997	14	11/24/1997	Y	Y
28	1	3	C-55%	6/27/1997	14	11/24/1997	NC	Y
30	1	3	Closeout	NC	NC	9/12/1997	Y	Y
31	1	3	C-85%	5/17/1996	4	8/20/1996	N	N
32	1	3	Complete	NC	NC	2/1/1996	NC	NC
33	1	3	Complete	6/1/1995	6	8/9/1995	Y	Y
34	2	11	Closeout	11/1/1995	43	9/1/1996	N	NC
35	7	5	C-80%	NC	NC	NC	NC	NC
38	4	3	Complete	1/10/1996	11	3/29/1996	Y	Y
39	1	3	Complete	6/1/1995	10	10/19/1995	Y	Y
40	1	3	Complete	4/1/1991	21	10/1/1991	Y	Y
41	1	3	Complete	7/20/1995	5	2/1/1996	Y	Y
Mean (Average)					17.0			
Median					12.9			
Yes Count out of 32							12	20
No Count out of 32							4	2
No Comment or Info Available Count out of 32				5	5	3	16	10
Percent Responding Yes							75%	91%
Percent Responding No							25%	9%

Appendix C - GC/CM Budget

GC/CM Project Data Table - Budget

Proj Code	Agency Code	Proj Type	Current Phase	Size Code	Project completed within budget?	TOTAL COSTS		
						Total Project	Design	Construction
						Budget/Actual	Budget/Actual	Est/Neg/Actual
2	10	6	SD	8	NC	\$ 74,855,500	\$ 5,655,000	\$ 51,200,000
3	10	4	DD	4	NC	\$ 32,800,000	\$ 3,360,800	\$ 27,937,000
4	10	6	CD	8	NC	\$ 70,000,000	\$ 700,000	\$ 44,200,000
5	10	6	Closeout	2	NC	\$ 14,043,000	NC	\$ 9,108,625
6	10	4	Construction	4	NC	\$ 32,500,000	\$ 4,073,725	\$ 26,390,536
7	10	13	Construction	5	NC	\$ 42,600,000	NC	\$ 26,000,000
8	10	4	Construction	4	NC	\$ 39,500,000	\$ 4,500,000	\$ 33,500,000
9	10	9	Phase 2	4	NC	\$ 34,953,000	\$ 4,599,528	\$ 29,196,872
10	10	6	Acceptance	8	Y	\$ 77,253,000	\$ 9,774,749	\$ 59,050,060
11	10	9	Closeout	8	Y	\$ 78,761,000	\$ 7,700,000	\$ 55,000,000
12	10	6	Closeout	4	Y	\$ 33,887,012	NC	\$ 23,093,393
13	9	6	Hold-DD	NC	NC	NC	NC	NC
14	9	6	C-70%	3	NC	\$ 29,900,000	\$ 2,826,500	\$ 20,985,300
15	9	6	C-6/00	2	NC	\$ 15,300,000	\$ 1,276,966	\$ 10,200,000
16	9	6	Const	4	NC	\$ 39,000,000	\$ 3,281,900	\$ 27,460,245
17	9	6	C-30%	5	Y	\$ 42,400,000	\$ 2,927,860	\$ 29,444,000
19	7	10	Complete	4	Y	\$ 38,586,708	\$ 1,642,289	\$ 27,902,943
21	2	8	CD	10	NC	\$ 92,000,000	\$ 8,704,000	\$ 69,192,000
22	2	7	Closeout	1	Y	\$ 9,116,500	\$ 757,241	\$ 6,056,088
26&25	1	6	Const	12	NC	\$ 197,140,000	\$ 18,167,295	\$ 138,050,700
27	1	3	Complete	1	N	\$ 5,490,187	\$ 428,911	\$ 4,688,096
28	1	3	C-55%	5	Y	\$ 42,658,839	\$ 3,363,321	\$ 34,861,209
30	1	3	Closeout	1	Y	\$ 8,700,381	\$ 1,126,000	\$ 3,488,534
31	1	3	C-85%	12	N	\$ 195,000,000	NC	\$ 128,941,030
32	1	3	Complete	1	NC	\$ 7,900,000	NC	\$ 7,067,980
33	1	3	Complete	2	Y	\$ 17,252,466	\$ 1,458,174	\$ 14,312,647
34	2	11	Closeout	3	N	\$ 20,500,000	\$ 1,650,000	\$ 16,327,000
35	7	5	C-80%	8	N	\$ 77,422,000	\$ 8,141,000	\$ 53,484,836
38	4	3	Complete	3	Y	\$ 25,252,241	\$ 1,100,000	\$ 18,230,671
39	1	3	Complete	2	Y	\$ 11,609,059	NC	\$ 7,152,050
40	1	3	Complete	11	Y	\$ 113,000,000	NC	\$ 80,000,000
41	1	3	Complete	1	Y	\$ 8,500,000	\$ 732,415	\$ 5,582,960
Total						\$ 1,527,880,893	\$ 97,947,674	\$ 1,088,104,775
Mean (Average)								
Median								
Yes Count out of 32						13		
No Count out of 32						4		
Comment or Info Available Count out of 3						1	8	1
Percent Responding Yes						76%		
Percent Responding No						24%		

Appendix C - GC/CM Budget

GC/CM Project Data Table - Budget

Proj Code	Agency Code	Proj Type	Current Phase	Size Code	Project completed within budget?	Pre-MACC services set in IVB?	MACC Total (includes fees & services)				
							Pub/Est	Proposed/Neg	Dif Pub/Neg	Actual to Date	Dif Neg/Act
2	10	6	SD	8	NC	Y	\$ 44,800,000	\$ 44,800,000	0.00%	NC	NC
3	10	4	DD	4	NC	Y	\$ 25,250,000	\$ 25,250,000	0.00%	NC	NC
4	10	6	CD	8	NC	Y	NC	NC	NC	NC	NC
5	10	6	Closeout	2	NC	NC	NC	\$ 9,108,625	NC	NC	NC
6	10	4	Construction	4	NC	Y	\$ 14,000,000	\$ 21,620,953	-54.44%	NC	NC
7	10	13	Construction	5	NC	Y	NC	NC	NC	NC	NC
8	10	4	Construction	4	NC	Y	\$ 25,500,000	\$ 25,800,000	-1.18%	NC	NC
9	10	9	Phase 2	4	NC	N	\$ 20,000,000	\$ 20,273,988	-1.37%	\$ 20,273,988	0.00%
10	10	6	Acceptance	8	Y	Y	\$ 43,900,000	\$ 53,756,361	-22.45%	\$ 53,756,361	0.00%
11	10	9	Closeout	8	Y	Y	NC	\$ 43,899,892	NC	\$ 47,012,104	-7.09%
12	10	6	Closeout	4	Y	N	\$ 20,000,000	\$ 20,532,576	-2.66%	\$ 23,093,393	-12.47%
13	9	6	Hold-DD	NC	NC	NC	NC	NC	NC	NC	NC
14	9	6	C-70%	3	NC	Y	\$ 16,200,000	\$ 15,834,062	2.26%	NC	NC
15	9	6	C-6/00	2	NC	NC	\$ 10,200,000	\$ 9,948,269	2.47%	NC	NC
16	9	6	Const	4	NC	Y	\$ 24,100,000	\$ 23,802,690	1.23%	\$ 23,802,690	0.00%
17	9	6	C-30%	5	Y	Y	\$ 27,000,000	\$ 29,444,000	-9.05%	NC	NC
19	7	10	Complete	4	Y	N	\$ 20,008,720	\$ 22,768,552	-13.79%	\$ 25,492,704	-11.96%
21	2	8	CD	10	NC	Y	\$ 62,000,000	\$ 62,000,000	0.00%	NC	NC
22	2	7	Closeout	1	Y	Y	\$ 5,580,000	\$ 5,586,850	-0.12%	\$ 6,056,088	-8.40%
26&25	1	6	Const	12	NC	NC	NC	NC	NC	\$ 111,136,050	NC
27	1	3	Complete	1	N	Y	\$ 2,581,497	\$ 2,674,177	-3.59%	\$ 3,748,464	-40.17%
28	1	3	C-55%	5	Y	Y	\$ 28,745,760	\$ 27,957,300	2.74%	\$ 28,390,331	-1.55%
30	1	3	Closeout	1	Y	Y	\$ 5,326,000	\$ 5,557,172	-4.34%	\$ 3,230,000	41.88%
31	1	3	C-85%	12	N	NC	NC	NC	NC	\$ 128,941,030	NC
32	1	3	Complete	1	NC	NC	\$ 7,067,980	\$ 7,067,980	0.00%	\$ 7,067,980	0.00%
33	1	3	Complete	2	Y	Y	\$ 11,000,000	\$ 11,411,798	-3.74%	\$ 11,293,541	1.04%
34	2	11	Closeout	3	N	Y	\$ 9,400,000	\$ 9,400,000	0.00%	\$ 14,660,000	-55.96%
35	7	5	C-80%	8	N	N	\$ 35,000,000	\$ 50,508,561	-44.31%	NC	NC
38	4	3	Complete	3	Y	N	\$ 16,000,000	\$ 17,197,898	-7.49%	NC	NC
39	1	3	Complete	2	Y	NC	NC	NC	NC	NC	NC
40	1	3	Complete	11	Y	N	\$ 80,000,000	\$ 80,000,000	0.00%	NC	NC
41	1	3	Complete	1	Y	Y	\$ 5,500,000	\$ 5,595,316	-1.73%	\$ 5,582,960	0.22%
Total											
Mean (Average)									-6.73%		
Median									-1.27%		
Yes Count out of 32					13	17					
No Count out of 32					4	6					
Comment or Info Available Count out of 32			1		13	7	8	6	8	14	16
Percent Responding Yes					76%	74%					
Percent Responding No					24%	26%					

Appendix C - GC/CM Budget

GC/CM Project Data Table - Budget

Proj Code	Agency Code	Proj Type	Current Phase	Size Code	Project completed within budget?	Fee Percentage	Preconstruction Services		General Conditions Fee		Total (Fee+Services+GC)	
						Est/Neg/Actual	Est/Neg/Actual	% of Neg MACC	Est/Neg/Actual	% of Neg MACC	Est/Neg/Actual	% of Neg MACC
2	10	6	SD	8	NC	3.90%	\$ 300,000	0.67%	\$ 1,810,502	4.04%	\$ 3,857,702	8.61%
3	10	4	DD	4	NC	NC	NC	NC	NC	NC	NC	NC
4	10	6	CD	8	NC	NC	NC	NC	NC	NC	NC	NC
5	10	6	Closeout	2	NC	3.70%	\$ 47,962	0.53%	\$ 440,000	4.83%	\$ 810,261	8.90%
6	10	4	Construction	4	NC	3.75%	\$ 201,157	0.93%	\$ 713,548	3.30%	\$ 1,690,683	7.82%
7	10	13	Construction	5	NC	4.50%	\$ 550,000	NC	\$ 1,600,000	NC	\$ 2,150,000	NC
8	10	4	Construction	4	NC	4.18%	\$ 200,000	0.78%	\$ 855,180	3.31%	\$ 2,133,328	8.27%
9	10	9	Phase 2	4	NC	3.50%	\$ 180,000	0.89%	\$ 1,658,254	8.18%	\$ 2,696,363	13.30%
10	10	6	Acceptance	8	Y	4.00%	\$ 80,000	0.15%	\$ 1,664,671	3.10%	\$ 3,544,515	6.59%
11	10	9	Closeout	8	Y	7.97%	NC	NC	\$ 1,679,727	3.83%	\$ 2,605,866	5.94%
12	10	6	Closeout	4	Y	3.50%	NC	NC	\$ 648,000	3.16%	\$ 1,366,640	6.66%
13	9	6	Hold-DD	NC	NC	NC	NC	NC	NC	NC	NC	NC
14	9	6	C-70%	3	NC	2.56%	\$ 263,970	1.67%	\$ 765,133	4.83%	\$ 1,434,103	9.06%
15	9	6	C-6/00	2	NC	2.40%	\$ 242,000	2.43%	\$ 509,000	5.12%	\$ 989,758	9.95%
16	9	6	Const	4	NC	2.23%	\$ 150,000	0.63%	\$ 908,000	3.81%	\$ 1,589,942	6.68%
17	9	6	C-30%	5	Y	2.85%	\$ 264,000	0.90%	\$ 900,000	3.06%	\$ 1,933,500	6.57%
19	7	10	Complete	4	Y	4.45%	NC	NC	\$ 1,276,183	5.61%	\$ 2,410,239	10.59%
21	2	8	CD	10	NC	3.95%	\$ 500,000	0.81%	\$ 1,485,000	2.40%	\$ 4,434,000	7.15%
22	2	7	Closeout	1	Y	3.75%	\$ 19,912	0.36%	\$ 280,000	5.01%	\$ 543,912	9.74%
26&25	1	6	Const	12	NC	3.00%	\$ 1,595,000	1.44%	\$ 3,049,811	2.74%	\$ 7,988,249	7.19%
27	1	3	Complete	1	N	3.50%	\$ 47,250	1.77%	\$ 345,922	12.94%	\$ 528,107	19.75%
28	1	3	C-55%	5	Y	3.50%	\$ 87,750	0.31%	\$ 1,171,105	4.19%	\$ 2,273,054	8.13%
30	1	3	Closeout	1	Y	4.00%	\$ 75,000	1.35%	\$ 171,000	3.08%	\$ 375,204	6.75%
31	1	3	C-85%	12	N	1.85%	\$ 524,576	0.41%	\$ 8,973,328	6.96%	\$ 11,905,426	9.23%
32	1	3	Complete	1	NC	3.25%	NC	NC	\$ 469,500	6.64%	\$ 699,209	9.89%
33	1	3	Complete	2	Y	3.00%	\$ 100,000	0.88%	\$ 473,114	4.15%	\$ 945,905	8.29%
34	2	11	Closeout	3	N	3.00%	\$ 460,000	4.89%	\$ 770,000	8.19%	\$ 1,670,000	17.77%
35	7	5	C-80%	8	N	3.00%	\$ 350,000	0.69%	\$ 1,111,018	2.20%	\$ 2,976,275	5.89%
38	4	3	Complete	3	Y	3.50%	NC	NC	\$ 637,898	3.71%	\$ 1,190,898	6.92%
39	1	3	Complete	2	Y	NC	NC	NC	NC	NC	NC	NC
40	1	3	Complete	11	Y	2.90%	NC	NC	NC	NC	NC	NC
41	1	3	Complete	1	Y	3.25%	NC	NC	\$ 406,713	7.27%	\$ 608,463	10.87%
Total												
Mean (Average)						3.53%		1.12%		4.83%		9.10%
Median						3.50%		0.84%		4.09%		8.28%
Yes Count out of 32						13						
No Count out of 32						4						
Comment or Info Available Count out of 32						1	13	3	10	11	4	5
Percent Responding Yes						76%						
Percent Responding No						24%						

Appendix C - GC/CM Budget

GC/CM Project Data Table - Budget

Proj Code	Agency Code	Proj Type	Current Phase	Size Code	Project completed within budget?	Contingency funds set aside?	Contingency			
							Amount Budgeted		Used to Date	Diff (Bud - Act)
							Total	% of Proj Budget	Total	Total
2	10	6	SD	8	NC	Y	\$11,101,000	14.83%	\$0	\$ 11,101,000
3	10	4	DD	4	NC	Y	\$2,244,000	6.84%	\$0	\$ 2,244,000
4	10	6	CD	8	NC	Y	NC	NC		NC
5	10	6	Closeout	2	NC	NC	NC	NC		NC
6	10	4	Construction	4	NC	Y	\$3,680,000	11.32%	\$0	\$ 3,680,000
7	10	13	Construction	5	NC	NC	NC	NC		NC
8	10	4	Construction	4	NC	Y	\$2,799,000	7.09%	\$0	\$ 2,799,000
9	10	9	Phase 2	4	NC	Y	\$ 763,027	2.18%	\$180,000	\$ 583,027
10	10	6	Acceptance	8	Y	Y	\$16,458,149	21.30%	\$1,641,482	\$ 14,816,667
11	10	9	Closeout	8	Y	Y	\$4,482,000	5.69%	\$2,200,000	\$ 2,282,000
12	10	6	Closeout	4	Y	Y	\$3,393,243	10.01%	\$3,393,243	\$ -
13	9	6	Hold-DD	NC	NC	NC	NC	NC	NC	NC
14	9	6	C-70%	3	NC	Y	\$1,772,049	5.93%	\$0	\$ 1,772,049
15	9	6	C-6/00	2	NC	Y	\$2,220,000	14.51%	\$0	\$ 2,220,000
16	9	6	Const	4	NC	Y	\$4,140,374	10.62%	\$1,950,000	\$ 2,190,374
17	9	6	C-30%	5	Y	Y	\$1,730,495	4.08%	\$107,000	\$ 1,623,495
19	7	10	Complete	4	Y	Y	\$2,560,000	6.63%	\$2,102,875	\$ 457,125
21	2	8	CD	10	NC	Y	\$6,752,000	7.34%	\$0	\$ 6,752,000
22	2	7	Closeout	1	Y	Y	\$869,175	9.53%	\$586,175	\$ 283,000
26&25	1	6	Const	12	NC	Y	\$11,733,100	5.95%	\$5,980,667	\$ 5,752,433
27	1	3	Complete	1	N	Y	\$497,961	9.07%	\$497,961	\$ -
28	1	3	C-55%	5	Y	Y	\$3,624,618	8.50%	\$1,760,905	\$ 1,863,713
30	1	3	Closeout	1	Y	Y	NC	NC		NC
31	1	3	C-85%	12	N	Y	NC	NC		NC
32	1	3	Complete	1	NC	Y	NC	NC		NC
33	1	3	Complete	2	Y	y	\$2,492,201	14.45%	\$797,435	\$ 1,694,766
34	2	11	Closeout	3	N	Y	\$1,950,000	9.51%	\$11,280,000	\$ (9,330,000)
35	7	5	C-80%	8	N	Y	\$3,393,098	4.38%	\$1,218,957	\$ 2,174,141
38	4	3	Complete	3	Y	Y	\$715,633	2.83%	\$715,633	\$ -
39	1	3	Complete	2	Y	Y	NC	NC		NC
40	1	3	Complete	11	Y	Y	\$8,000,000	7.08%	\$6,050,000	\$ 1,950,000
41	1	3	Complete	1	Y	Y	\$609,730	7.17%	\$405,565	\$ 204,165
Total										
Mean (Average)								8.62%		
Median								7.26%		
Yes Count out of 32					13	27				
No Count out of 32					4	0				
Comment or Info Available Count out of 32				1	13	3	8	8	1	8
Percent Responding Yes					76%	100%				
Percent Responding No					24%	0%				

Appendix C - GC/CM Budget

GC/CM Project Data Table - Budget

Proj Code	Agency Code	Proj Type	Current Phase	Size Code	Project completed within budget?	Where cost incentives utilized?	Cost Savings Percentage Split		Where buyout savings included in incentive?	Final Incentative Paid	% of Project Cost	Did method result in budget improvements?
							Owner	GC/CM				
2	10	6	SD	8	NC	N	N	N	N	\$ -	0.00%	NC
3	10	4	DD	4	NC	N	N	N	N	\$ -	0.00%	NC
4	10	6	CD	8	NC	NC	NC	NC	NC	NC	NC	NC
5	10	6	Closeout	2	NC	Y	NC	NC	N	\$ 100,000	0.71%	Y
6	10	4	Construction	4	NC	Y	NC	NC	Y	NC	NC	NC
7	10	13	Construction	5	NC	N	N	N	N	\$ -	0.00%	NC
8	10	4	Construction	4	NC	Y	100%	0%	Y	NC	NC	Y
9	10	9	Phase 2	4	NC	Y	89%	11%	Y	\$ 100,000	0.29%	Y
10	10	6	Acceptance	8	Y	N	N	N	N	\$ -	0.00%	NC
11	10	9	Closeout	8	Y	N	N	N	N	\$ -	0.00%	NC
12	10	6	Closeout	4	Y	N	N	N	N	\$ -	0.00%	NC
13	9	6	Hold-DD	NC	NC	NC	NC	NC	NC	NC	NC	NC
14	9	6	C-70%	3	NC	Y	NC	NC	Y	NC	NC	NC
15	9	6	C-6/00	2	NC	Y	NC	NC	Y	NC	NC	Y
16	9	6	Const	4	NC	Y	NC	NC	Y	NC	NC	NC
17	9	6	C-30%	5	Y	Y	NC	NC	Y	NC	NC	Y
19	7	10	Complete	4	Y	N	N	N	N	\$ -	0.00%	NC
21	2	8	CD	10	NC	NC	NC	NC	NC	NC	NC	NC
22	2	7	Closeout	1	Y	Y	75%	25%	Y	\$ 95,000	1.04%	Y
26&25	1	6	Const	12	NC	Y	40%	60%	NC	NC	NC	N
27	1	3	Complete	1	N	Y	50%	50%	Y	\$ 11,411	0.21%	Y
28	1	3	C-55%	5	Y	N	N	N	N	\$ -	0.00%	Y
30	1	3	Closeout	1	Y	N	N	N	N	\$ -	0.00%	Y
31	1	3	C-85%	12	N	Y	50%	50%	N	NC	NC	NC
32	1	3	Complete	1	NC	Y	NC	NC	NC	NC	NC	NC
33	1	3	Complete	2	Y	Y	50%	50%	Y	\$ 221,464	1.28%	Y
34	2	11	Closeout	3	N	Y	75%	25%	Y	\$ -	0.00%	N
35	7	5	C-80%	8	N	N	N	N	N	\$ -	0.00%	N
38	4	3	Complete	3	Y	N	N	N	N	\$ -	0.00%	NC
39	1	3	Complete	2	Y	Y	NC	NC	NC	NC	NC	Y
40	1	3	Complete	11	Y	N	N	N	N	\$ -	0.00%	NC
41	1	3	Complete	1	Y	Y	50%	50%	N	\$ 95,000	1.12%	Y
Total												
Mean (Average)							64.33%	35.67%			0.24%	
Median							50.00%	50.00%			0.00%	
Yes Count out of 32					13	17			11			12
No Count out of 32					4	10			13			3
Comment or Info Available Count out of 32					1	13	11	11	6	13	13	15
Percent Responding Yes					76%	63%			46%			80%
Percent Responding No					24%	37%			54%			20%

Appendix D - GC/CM Change

GC/CM Project Data Table - Change

Proj Code	Agency Code	Prj Type	Current Phase	Did method result in less RFI's?	Request for Info / Clarif	Did method result in less CO's?	Were CO kept within reason?
2	10	6	SD	NC	NC	NC	NC
3	10	4	DD	NC	NC	NC	NC
4	10	6	CD	NC	NC	NC	NC
5	10	6	Closeout	Y	302	Y	NC
6	10	4	Construction	NC	NC	NC	NC
7	10	13	Construction	NC	NC	NC	NC
8	10	4	Construction	NC	NC	NC	NC
9	10	9	Phase 2	NC	322	NC	NC
10	10	6	Acceptance	N	2599	N	Y
11	10	9	Closeout	N	2294	N	Y
12	10	6	Closeout	NC	1145	N	NC
13	9	6	Hold-DD	NC	NC	NC	NC
14	9	6	C-70%	NC	NC	NC	NC
15	9	6	C-6/00	NC	NC	NC	NC
16	9	6	Const	NC	NC	NC	NC
17	9	6	C-30%	Y	188	Y	Y
19	7	10	Complete	Y	558	Y	Y
21	2	8	CD	NC	NC	NC	NC
22	2	7	Closeout	Y	165	Y	Y
26&25	1	6	Const	N	2653	N	N
27	1	3	Complete	Y	202	N	Y
28	1	3	C-55%	N	391	N	Y
30	1	3	Closeout	Y	NC	Y	Y
31	1	3	C-85%	NC	NC	NC	NC
32	1	3	Complete	NC	NC	NC	Y
33	1	3	Complete	Y	200	Y	Y
34	2	11	Closeout	N	430	N	N
35	7	5	C-80%	N	1328	N	N
38	4	3	Complete	N	NC	N	Y
39	1	3	Complete	NC	NC	Y	NC
40	1	3	Complete	N	NC	N	Y
41	1	3	Complete	Y	NC	Y	Y
Mean (Average)					912.6		
Median					410.5		
Yes Count out of 32				8		8	13
No Count out of 32				8		10	3
Comment or Info Available Count out of 3				16	18	14	16
Percent Responding Yes				50%		44%	81%
Percent Responding No				50%		56%	19%

Appendix D - GC/CM Change

GC/CM Project Data Table - Change

Proj Code	Agency Code	Prj Type	Current Phase	Change Orders																	% of Project Cost
				Client/Owner			Design Error/Omission			Contractor			Unforeseen Conditions			Other			Total		
				Total	\$ Volume	% Proj	Total	\$ Volume	% Proj	Total	\$ Volume	% Proj	Total	\$ Volume	% Proj	Total	\$ Volume	% Proj	Total	\$ Volume	
2	10	6	SD	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
3	10	4	DD	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
4	10	6	CD	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
5	10	6	Closeout	44	\$ 232,620	1.66%	43	\$ 249,043	1.77%	0	\$ -	0.00%	10	\$ 116,587	0.83%	3	\$ 57,622	0.41%	100	\$ 655,872	4.67%
6	10	4	Construction	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
7	10	13	Construction	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
8	10	4	Construction	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
9	10	9	Phase 2	12	\$ 41,130	0.12%	47	\$ 185,689	0.53%	0	\$ -	0.00%	22	\$ 181,858	0.52%	60	\$ 1,682,487	4.81%	141	\$ 2,091,164	5.98%
10	10	6	Acceptance	100	\$ 1,789,037	2.32%	427	\$ 1,906,643	2.47%	17	\$ 24,000	0.03%	16	\$ 76,500	0.10%	341	\$ 2,647,795	3.43%	901	\$ 6,443,975	8.34%
11	10	9	Closeout	NC	\$ 619,406	0.79%	NC	\$ 1,501,623	1.91%	NC	\$ 44,362	0.06%	NC	\$ 162,101	0.21%		\$ 2,716,810	3.45%		\$ 5,044,302	6.40%
12	10	6	Closeout	NC	\$ 1,928,276	5.69%	NC	\$ 402,680	1.19%	0	\$ -	0.00%	NC	\$ 677,866	2.00%		\$ 2,397,764	7.08%	0	\$ 5,406,586	15.95%
13	9	6	Hold-DD	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
14	9	6	C-70%	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
15	9	6	C-6/00	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
16	9	6	Const	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
17	9	6	C-30%	NC	\$ (26,000)	-0.06%	NC	\$ 179,000	0.42%	NC	\$ -	0.00%	NC	\$ 49,700	0.12%	NC	\$ -	0.00%	NC	\$ 202,700	0.48%
19	7	10	Complete	NC	\$ 1,150,000	2.98%	NC	\$ 200,000	0.52%	NC	\$ 75,000	0.19%	NC	\$ 1,596,915	4.14%	0	\$ -	0.00%	0	\$ 3,021,915	7.83%
21	2	8	CD	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC		NC	NC		NC	NC	NC
22	2	7	Closeout	19	\$ 218,062	2.39%	16	\$ 110,000	1.21%	8	\$ 51,000	0.56%	20	\$ 173,189	1.90%	0	\$ -	0.00%	63	\$ 552,251	6.06%
26&25	1	6	Const	20	\$ 599,639	0.30%	64	\$ 948,919	0.48%	116	\$ 3,094,785	1.57%	31	\$ 1,183,668	0.60%	7	\$ 276,920	0.14%	238	\$ 6,103,931	3.10%
27	1	3	Complete	35	\$ 820,000	14.94%	12	\$ 32,000	0.58%	0	\$ -	0.00%	26	\$ 260,000	4.74%	6	\$ 387,334	7.06%	79	\$ 1,499,334	27.31%
28	1	3	C-55%	47	\$ 400,000	0.94%	5	\$ 107,000	0.25%	2	\$ 1,000	0.00%	18	\$ 394,000	0.92%	12	\$ (287,000)	-0.67%	84	\$ 615,000	1.44%
30	1	3	Closeout	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
31	1	3	C-85%	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
32	1	3	Complete	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
33	1	3	Complete	28	\$ 130,883	0.76%	2	\$ 15,000	0.09%	1	\$ 2,000	0.01%	6	\$ 94,000	0.54%	3	\$ (321,588)	-1.86%	40	\$ (79,705)	-0.46%
34	2	11	Closeout	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	\$ 600,000	2.93%
35	7	5	C-80%	61	\$ 9,224,423	11.91%	30	\$ 434,663	0.56%	17	\$ 1,707,860	2.21%	26	\$ 650,976	0.84%	0	\$ -	0.00%	134	\$ 12,017,922	15.52%
38	4	3	Complete	8	\$ 1,559,898	6.18%	0	\$ -	0.00%	5	\$ 284,788	1.13%	0	\$ -	0.00%	2	\$ (82,876)	-0.33%	15	\$ 1,761,810	6.98%
39	1	3	Complete	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
40	1	3	Complete	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	900	\$ 2,900,000	2.57%
41	1	3	Complete	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Mean (Average)				37.4		3.64%	64.6		0.86%	15.1		0.41%	17.5		1.25%	39.5		1.68%	207.3		7.19%
Median				31.5		1.99%	23		0.55%	2		0.02%	19		0.72%	3		0.07%	84		6.02%
Yes Count out of 32																					
No Count out of 32																					
Comment or Info Available Count out of 3				22	18	18	22	18	18	21	18	18	22	18	17	19	18	17	18	16	16
Percent Responding Yes																					
Percent Responding No																					

Appendix E - GC/CM Process

GC/CM Project Data Table - GC/CM Process

Proj Code	Agency Code	Proj Type	Current Phase	Was the Public Notified?	Any Public Protests?	Public notice for RFQ?	Stage of Design at GC/CM Selection	Design % at GC/CM Selection	Design % at MACC Negotiations
2	10	6	SD	Y	N	Y	PROG	NC	NA
3	10	4	DD	Y	N	Y	PROG	NC	50%
4	10	6	CD	Y	N	Y	DD	NC	50%
5	10	6	Closeout	Y	N	Y	CD	NC	60%
6	10	4	Construction	Y	N	Y	SD	NC	70%
7	10	13	Construction	Y	N	Y	DD	NC	100%
8	10	4	Construction	Y	N	Y	DD	NC	50%
9	10	9	Phase 2	Y	N	Y	DD	NC	70%
10	10	6	Acceptance	Y	Y	Y	DD	NC	50%
11	10	9	Closeout	Y	Y	NC	CD	NC	50%
12	10	6	Closeout	Y	N	Y	DD	NC	50%
13	9	6	Hold-DD	NC	NC	NC	NC	NC	NC
14	9	6	C-70%	Y	N	Y	SD	NC	90%
15	9	6	C-6/00	Y	N	Y	SD	NC	90%
16	9	6	Const	Y	N	Y	SD	NC	50%
17	9	6	C-30%	Y	N	Y	SD	NC	90%
19	7	10	Complete	Y	N	Y	DD	60%	80%
21	2	8	CD	Y	N	Y	SD	NC	70%
22	2	7	Closeout	Y	N	Y	SD	NC	70%
26&25	1	6	Const	Y	N	Y	PROG	NC	30%
27	1	3	Complete	Y	N	Y	PROG	NC	60%
28	1	3	C-55%	Y	N	Y	PROG	NC	60%
30	1	3	Closeout	N	N	Y	SD	30%	38%
31	1	3	C-85%	NC	N	NC	NC	NC	NC
32	1	3	Complete	N	N	Y	NC	NC	NC
33	1	3	Complete	N	N	Y	PROG	NC	14%
34	2	11	Closeout	Y	N	Y	SD	NC	100%
35	7	5	C-80%	Y	N	Y	DD	NC	90%
38	4	3	Complete	Y	N	Y	DD	50%	70%
39	1	3	Complete	NC	NC	NC	SD	NC	35%
40	1	3	Complete	N	N	Y	SD	NC	70%
41	1	3	Complete	N	N	Y	SD	30%	40%
Mean (Average)									62%
Median									60%
Yes Count out of 32				24	2	28			
No Count out of 32				5	28	0			
Comment or Info Available Count out of 3				3	2	4	3	28	3
Percent Responding Yes				83%	7%	100%			
Percent Responding No				17%	93%	0%			

Appendix E - GC/CM Process

GC/CM Project Data Table - GC/CM Pro

Proj Code	Agency Code	Proj Type	Current Phase	GC/CM Selection Process Number of Firms Competing				Firm with highest pts at end Interview same firm for RFQ?	Firm with highest pts at end of RFP same firm for Interv?	Was firm with lowest price proposal selected?
				Qual/RFQ	Interview	RFP	Neg. MACC			
2	10	6	SD	8	7	3	N/A	N	Y	N
3	10	4	DD	6	4	2	1	Y	Y	N
4	10	6	CD	5	5	4	1	N	N	N
5	10	6	Closeout	6	4	2	1	N	Y	Y
6	10	4	Construction	12	4	3	1	N	Y	Y
7	10	13	Construction	NC	NC	NC	NC	NC	NC	NC
8	10	4	Construction	8	4	4	1	Y	Y	N
9	10	9	Phase 2	4	4	3	1	N	Y	N
10	10	6	Acceptance	7	5	5		NC	NC	Y
11	10	9	Closeout	10	4	3	1	Y	NC	Y
12	10	6	Closeout	13	8	4	1	NC	NC	Y
13	9	6	Hold-DD	NC	NC	NC	NC	NC	NC	NC
14	9	6	C-70%	9	5	4	1	N	N	Y
15	9	6	C-6/00	5	3	2	1	N	Y	Y
16	9	6	Const	5	4	4	1	N	N	Y
17	9	6	C-30%	7	3	3	1	Y	N	Y
19	7	10	Complete	6	3	3	1	N	Y	N
21	2	8	CD	4	3	3	1	Y	Y	NC
22	2	7	Closeout	NC	NC	NC	NC	Y	Y	Y
26&25	1	6	Const	5	3	3	1	N	Y	Y
27	1	3	Complete	7	3	3	1	Y	Y	Y
28	1	3	C-55%	7	3	3	1	Y	Y	Y
30	1	3	Closeout	4	3	3	1	N	Y	Y
31	1	3	C-85%	9	5	4	1	Y	Y	Y
32	1	3	Complete	8	3	3	1	Y	Y	Y
33	1	3	Complete	9	5	5	1	Y	Y	Y
34	2	11	Closeout	6	0	6	1	Y	N	Y
35	7	5	C-80%	NC	3	3	1	NC	N	Y
38	4	3	Complete	12	5	5	1	N	Y	Y
39	1	3	Complete	NC	NC	NC	NC	NC	NC	NC
40	1	3	Complete	NC	NC	NC	2	NC	NC	NC
41	1	3	Complete	7	3	3	1	N	Y	Y
Mean (Average)				7.3	3.9	3.4	1.0			
Median				7.0	4.0	3.0	1.0			
Yes Count out of 32								12	19	21
No Count out of 32								13	6	6
Comment or Info Available Count out of 3				6	5	5	4	7	7	5
Percent Responding Yes								48%	76%	78%
Percent Responding No								52%	24%	22%

Appendix E - GC/CM Process

GC/CM Project Data Table - GC/CM Pro

Proj Code	Agency Code	Proj Type	Current Phase	Price Difference Between The Selected Firm & Proposing Firms (Total Fee & GC's)				Any protest during selection process?	Was VE & other cost saving tech. employed?	Did method result in design impv?	Any disputes between Owner & GCCM?
				Firm 1-2	Firm 1-3	Firm 1-4	Firm 1-5				
2	10	6	SD	2.30%	0.00%			N	Y	NC	N
3	10	4	DD	1.50%				N	NC	NC	N
4	10	6	CD	NC	NC	NC	NC	N	Y	NC	NC
5	10	6	Closeout	2.90%				N	Y	Y	N
6	10	4	Construction	1.00%	2.00%	2.00%	2.00%	N	Y	Y	NC
7	10	13	Construction	NC	NC	NC	NC	N	Y	Y	NC
8	10	4	Construction	7.00%	20.00%	42.00%		N	Y	Y	NC
9	10	9	Phase 2	0.80%	-1.30%			N	Y	Y	N
10	10	6	Acceptance	6.00%	7.00%	7.40%	28.00%	N	Y	N	N
11	10	9	Closeout	1.97%	3.50%	3.98%		NC	Y	Y	Y
12	10	6	Closeout	4.90%	9.00%	165.00%		N	Y	Y	N
13	9	6	Hold-DD	NC	NC	NC	NC	NC	NC	NC	NC
14	9	6	C-70%	9.90%	13.20%	39.20%		Y	Y	N	N
15	9	6	C-6/00	23.00%				Y	Y	N	N
16	9	6	Const	21.48%	24.84%	27.99%		N	Y	Y	N
17	9	6	C-30%	21.00%	23.00%			N	Y	Y	N
19	7	10	Complete	-1.60%	1.00%			N	Y	Y	N
21	2	8	CD	5.00%	6.00%			N	Y	Y	N
22	2	7	Closeout	NC	NC	NC	NC	N	Y	Y	N
26&25	1	6	Const	6.00%	44.00%			N	Y	N	N
27	1	3	Complete	0.04%	2.50%			N	N	N	N
28	1	3	C-55%	0.04%	2.50%			N	Y	Y	N
30	1	3	Closeout	NC	NC	NC	NC	N	Y	Y	N
31	1	3	C-85%	NC	NC	NC	NC	N	NC	NC	NC
32	1	3	Complete	NC	NC	NC	NC	N	NC	NC	N
33	1	3	Complete	0.25%	2.00%	2.30%	3.20%	N	Y	N	N
34	2	11	Closeout	1.20%			4.00%	N	Y	NC	Y
35	7	5	C-80%	6.40%	61.40%			N	Y	N	Y
38	4	3	Complete	4.96%	25.54%	48.34%	53.25%	N	Y	Y	Y
39	1	3	Complete	NC	NC	NC	NC	NC	NC	Y	N
40	1	3	Complete	NC	NC	NC	NC	N	Y	NC	NC
41	1	3	Complete	NC	NC	NC	NC	N	Y	Y	N
Mean (Average)				6%	14%	38%	18%				
Median				4%	7%	28%	4%				
Yes Count out of 32									26	17	4
No Count out of 32									1	7	21
Comment or Info Available Count out of 3				10	10	10	10	3	5	8	7
Percent Responding Yes									96%	71%	16%
Percent Responding No									4%	29%	84%

Appendix E - GC/CM Process

GC/CM Project Data Table - GC/CM Proj

Proj Code	Agency Code	Proj Type	Current Phase	Any claims between Owner & GCCM?	Claim Summary				% of Total Project Cost
					# Claims	Proposed \$	Settlement \$	Diff	
2	10	6	SD	N	0	None	None	None	0.00%
3	10	4	DD	N	0	None	None	None	0.00%
4	10	6	CD	NC	NC	NC	NC	NC	NC
5	10	6	Closeout	N	0	None	None	None	0.00%
6	10	4	Construction	NC	NC	NC	NC	NC	NC
7	10	13	Construction	NC	NC	NC	NC	NC	NC
8	10	4	Construction	NC	NC	NC	NC	NC	NC
9	10	9	Phase 2	N	0	None	None	None	0.00%
10	10	6	Acceptance	N	0	None	None	None	0.00%
11	10	9	Closeout	Y	4	NC	NC	NC	NC
12	10	6	Closeout	N	0	None	None	None	0.00%
13	9	6	Hold-DD	NC	NC	NC	NC	NC	NC
14	9	6	C-70%	N	0	None	None	None	0.00%
15	9	6	C-6/00	N	0	None	None	None	0.00%
16	9	6	Const	N	0	None	None	None	0.00%
17	9	6	C-30%	N	0	None	None	None	0.00%
19	7	10	Complete	Y	1	\$ 1,000,000	\$ 600,000	\$ 400,000	1.55%
21	2	8	CD	NC	NC	NC	NC	NC	NC
22	2	7	Closeout	N	0	None	None	None	0.00%
26&25	1	6	Const	NC	NC	NC	NC	NC	NC
27	1	3	Complete	N	0	None	None	None	0.00%
28	1	3	C-55%	N	0	None	None	None	0.00%
30	1	3	Closeout	N	0	None	None	None	0.00%
31	1	3	C-85%	NC	NC	NC	NC	NC	NC
32	1	3	Complete	N	0	None	None	None	0.00%
33	1	3	Complete	N	0	None	None	None	0.00%
34	2	11	Closeout	Y	27	\$ 357,000	NC	NC	1.74%
35	7	5	C-80%	Y	1	\$ 5,495,727	\$ 3,689,738	\$ 1,805,989	4.77%
38	4	3	Complete	N	0	None	None	None	0.00%
39	1	3	Complete	N	0	None	None	None	0.00%
40	1	3	Complete	Y	1	\$ 4,500,000	\$ 2,700,000	\$ 1,800,000	3.98%
41	1	3	Complete	N	0	None	None	None	0.00%
Mean (Average)					1.4	\$ 2,838,182	\$ 2,329,913	\$ 1,335,330	0.52%
Median					0.0	\$ 2,750,000	\$ 2,700,000	\$ 1,800,000	0.00%
Yes Count out of 32					5				
No Count out of 32					19				
Comment or Info Available Count out of 3					8	9	10	10	9
Percent Responding Yes					21%				
Percent Responding No					79%				

Appendix F - GC/CM Subcontractor

GC/CM Project Data Table - Subcontractor

Proj Code	Agency Code	Proj Type	Current Phase	Workpackage Numbers			Did GC/CM advertise packages they were bidding?	Any protests during sub selection?	Any subcontractor claims?	Who received buyout cost savings?
				Utilized	GC/CM Bid On	GC/CM Awarded				
2	10	6	SD	NC	NC	NC	NC	NC	NC	NC
3	10	4	DD	NC	NC	NC	NC	NC	NC	NC
4	10	6	CD	NC	NC	NC	NC	NC	NC	NC
5	10	6	Closeout	17	0	0	N	N	NC	Owner
6	10	4	Construction	NC	NC	NC	NC	NC	NC	NC
7	10	13	Construction	43	2	NC	NC	NC	NC	NC
8	10	4	Construction	30	3	3	Y	N	NC	Split
9	10	9	Phase 2	25	4	3	Y	Y	NC	Incentive
10	10	6	Acceptance	96	4	4	Y	Y	Y	None
11	10	9	Closeout	20	2	2	Y	N	Y	None
12	10	6	Closeout	35	0	0	N	N	Y	Owner
13	9	6	Hold-DD	NC	NC	NC	NC	NC	NC	NC
14	9	6	C-70%	41	1	1	Y	Y	N	Other
15	9	6	C-6/00	32	0	0	N	N	NC	Split
16	9	6	Const	43	7	5	Y	N	NC	Incentive
17	9	6	C-30%	39	39	5	Y	Y	N	Split
19	7	10	Complete	36	0	0	N	N	Y	Owner
21	2	8	CD	NC	NC	NC	NC	NC	NC	NC
22	2	7	Closeout	17	0	0	N	N	N	Split
26&25	1	6	Const	NC	2	1	N	N	N	Split
27	1	3	Complete	6	0	0	Y	N	N	Split
28	1	3	C-55%	26	2	2	Y	N	N	Owner
30	1	3	Closeout	5	0	0	N	N	N	Owner
31	1	3	C-85%	20	0	0	N	Y	Y	NC
32	1	3	Complete	NC	0	0	N	N	N	Split
33	1	3	Complete	6	0	0	N	Y	Y	Owner
34	2	11	Closeout	20	2	1	Y	N	Y	NONE
35	7	5	C-80%	24	3	2	Y	Y	Y	Owner
38	4	3	Complete	8	0	0	N	N	Y	Owner
39	1	3	Complete	NC	NC	NC	N	NC	NC	NC
40	1	3	Complete	15	0	0	N	Y	Y	Owner
41	1	3	Complete	NC	0	0	N	N	N	Split
Mean (Average)				27.5	2.8	1.2				
Median				24.5	0.0	0.0				
Yes Count out of 32							11	8	10	
No Count out of 32							14	16	9	
No Comment or Info Available Count out of 32				10	7	8	7	8	13	9
Percent Responding Yes							44%	33%	53%	
Percent Responding No							56%	67%	47%	

Appendix G - GC/CM Safety

GC/CM Project Data Table - Safety

Proj Code	Agency Code	Proj Type	Current Phase	Number of lost time accidents:	Number of lost time hours:
2	10	6	SD	NC	NC
3	10	4	DD	NC	NC
4	10	6	CD	NC	NC
5	10	6	Closeout	0	0
6	10	4	Construction	NC	NC
7	10	13	Construction	NC	NC
8	10	4	Construction	NC	NC
9	10	9	Phase 2	1	NC
10	10	6	Acceptance	0	0
11	10	9	Closeout	NC	NC
12	10	6	Closeout	NC	NC
13	9	6	Hold-DD	NC	NC
14	9	6	C-70%	NC	NC
15	9	6	C-6/00	NC	NC
16	9	6	Const	NC	NC
17	9	6	C-30%	1	2
19	7	10	Complete	NC	NC
21	2	8	CD	NC	NC
22	2	7	Closeout	0	0
26&25	1	6	Const	0	0
27	1	3	Complete	NC	NC
28	1	3	C-55%	NC	NC
30	1	3	Closeout	0	0
31	1	3	C-85%	NC	NC
32	1	3	Complete	NC	NC
33	1	3	Complete	NC	NC
34	2	11	Closeout	2	24
35	7	5	C-80%	2	152
38	4	3	Complete	0	0
39	1	3	Complete	NC	NC
40	1	3	Complete	NC	NC
41	1	3	Complete	0	0
Mean (Average)				0.55	17.8
Median				0.0	0.0
Yes Count out of 32					
No Count out of 32					
No Comment or Info Available Count out of 32				21	22
Percent Responding Yes					
Percent Responding No					

Appendix H - GC/CM Quality

GC/CM Project Data Table - Quality

Proj Code	Agency Code	Proj Type	Current Phase	Did design, material & workmanship quality meet expectation?	Were program req. met?	Punchlist items within reason?	As-builts & O&M manuals satisfactory?	Any major commissioning problems?	Were users properly trained?	Excessive callbacks during warranty?
2	10	6	SD	NC	NC	NC	NC	NC	NC	NC
3	10	4	DD	NC	NC	NC	NC	NC	NC	NC
4	10	6	CD	NC	NC	NC	NC	NC	NC	NC
5	10	6	Closeout	Y	Y	Y	Y	N	Y	NC
6	10	4	Construction	NC	NC	NC	NC	NC	NC	NC
7	10	13	Construction	NC	NC	NC	NC	NC	NC	NC
8	10	4	Construction	NC	NC	NC	NC	NC	NC	NC
9	10	9	Phase 2	NC	NC	NC	NC	NC	NC	NC
10	10	6	Acceptance	Y	Y	Y	Y	Y	Y	N
11	10	9	Closeout	Y	Y	Y	Y	Y	Y	N
12	10	6	Closeout	Y	Y	Y	Y	N	Y	N
13	9	6	Hold-DD	NC	NC	NC	NC	NC	NC	NC
15	9	6	C-6/00	NC	NC	NC	NC	NC	NC	NC
16	9	6	Const	y	y	NC	NC	NC	NC	NC
18	9	6	Const	NC	NC	NC	NC	NC	NC	NC
19	7	10	Complete	Y	Y	Y	Y	N	Y	N
20	8	10	Design	NC	NC	NC	NC	NC	NC	NC
21	2	8	CD	NC	NC	NC	NC	NC	NC	NC
22	2	7	Closeout	Y	Y	Y	NC	N	Y	NC
26&25	1	6	Const	Y	Y	Y	NC	NC	Y	NC
27	1	3	Complete	NC	Y	Y	Y	Y	Y	Y
28	1	3	C-55%	Y	Y	Y	NC	NC	NC	NC
30	1	3	Closeout	Y	Y	Y	Y	Y	Y	Y
31	1	3	C-85%	NC	NC	NC	NC	NC	NC	NC
32	1	3	Complete	NC	NC	NC	NC	NC	NC	NC
33	1	3	Complete	N	Y	Y	Y	Y	Y	Y
34	2	11	Closeout	N	Y	Y	NC	Y	N	Y
35	7	5	C-80%	N	Y	Y	Y	Y	Y	Y
38	4	3	Complete	Y	Y	Y	Y	Y	Y	Y
39	1	3	Complete	Y	Y	Y	Y	Y	Y	N
40	1	3	Complete	N	Y	N	N	Y	Y	Y
41	1	3	Complete	Y	Y	Y	Y	N	Y	N
Mean (Average)										
Median										
Yes Count out of 32				13	18	16	12	10	15	7
No Count out of 32				4	0	1	1	5	1	6
No Comment or Info Available Count out of 32				15	14	15	19	17	15	19
Percent Responding Yes				76%	100%	94%	92%	67%	94%	54%
Percent Responding No				24%	0%	6%	8%	33%	6%	46%

Appendix I - GC/CM MWBE

GC/CM Project Data Table - MWBE

Proj Code	Agency Code	Proj Type	Current Phase	Were the MWBE requirements?	MBE %	WBE %	Were the MWBE req. met?
2	10	6	SD	NR			NR
3	10	4	DD	NR			NR
4	10	6	CD	NR			NR
5	10	6	Closeout	NR			NR
6	10	4	Construction	NC	NC	NC	NC
7	10	13	Construction	NC	NC	NC	NC
8	10	4	Construction	NR			NR
9	10	9	Phase 2	NR			NR
10	10	6	Acceptance	Y	8%	6%	Y
11	10	9	Closeout	Y	10%	6%	Y
12	10	6	Closeout	Y	10%	6%	Y
13	9	6	Hold-DD	NC	NC	NC	NC
14	9	6	C-70%	Y	12%	7%	NC
15	9	6	C-6/00	NC	NC	NC	NC
16	9	6	Const	NC	NC	NC	NC
17	9	6	C-30%	Y	NC	NC	NC
19	7	10	Complete	Y	10%	5%	Y
21	2	8	CD	NC	NC	NC	NC
22	2	7	Closeout	NC	NC	NC	NC
26&25	1	6	Const	Y	8%	8%	Y
27	1	3	Complete	Y	NC	NC	Y
28	1	3	C-55%	NR			NR
30	1	3	Closeout	Y	10%	6%	Y
31	1	3	C-85%	Y	12%	10%	Y
32	1	3	Complete	Y	10%	6%	NC
33	1	3	Complete	Y	NC	NC	Y
34	2	11	Closeout	Y	18%	9%	Y
35	7	5	C-80%	Y	15%	5%	Y
38	4	3	Complete	Y	NC	NC	NC
39	1	3	Complete	Y	NC	NC	NC
40	1	3	Complete	Y	5%	3%	N
41	1	3	Complete	Y	12%	10%	Y
Mean (Average)					10.75%	6.69%	
Median					10.00%	6.00%	
Not Required				28%			7
Required				72%			
Yes Count out of 32				18			12
No Count out of 32				0			1
No Comment or Info Available Count out of 32				7	12	12	12
Percent Responding Yes				100%			92%
Percent Responding No				0%			8%

Appendix J – GC/CM Comments

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1. GC/CM Team Survey Comments

1.1 GC/CM Project Performance Comments

Architect/Engineer

- Met & exceeded a very aggressive schedule while delivering a high quality product. Cost was appropriate to product value.
- Project was a renovation of 100-yr. old historic structures, so a significant GC/CM contribution was coordination of very complex construction.
- The subcontractors have performed well in dealing with tough remodel conditions. The change order prices are at a premium however.
- Project is not completed yet (60% construction), but has gone quite smoothly on all fronts in all phases.
- It's been very effective process for resolving complex project conditions / issues.

Contractor

- Project is currently 30% complete and has experienced minimal problems to date.
- So far so good.
- Overall, the project provided good value to the owner and met schedule expectations. The process created more of a team approach than a typical job.
- Design took longer than expected, however we are on track for an early building delivery. Project is under budget. All program requirements were met.
- This has been a very successful project. Program was met and exceeded, we beat the schedule by 1 school year, beat the budget by over \$2 million, relationships are great, quality is great.
- High performance project in consideration of overall complexity.

Owner

- Very successful project with in budget, schedule and legislative intent.
- The resulting building has received an AIA Honor Award, as well as others. User satisfaction is very high. Process to get there was very difficult and painful.
- Good project except for warranty issues.
- The GC/CM project managers performance was not up to expectations. They left the project before completion.
- Under budget & within the legislative intent.
- Very Difficult project for technology to match design intent. GC/CM performed very well.
- A/E did not provide quality documents - details were missing which resulted in CO's and TCM's.
- Great project. We were able to add scope within the MACC & with additional funds and stay on schedule. Excellent coordination on a difficult site.
- So far the construction project is on schedule & under budget. Completion scheduled for the Fall 2001.
- Project costs below budget - allowed additional equipment procurement. Project delivered per schedule set at project initiation 5 years ago. Owner was delighted.
- Oceanography and Fisheries Bldgs. were one UW project, but separate \$30 million buildings. Fish was more successful RE: schedule, budget, quality, than Ocean. This survey is an average.
- Subcontractor buyout came in below budget. The Project is a renovation in an occupied space. Scheduling is being maintained by a lot of team support.
- Excellent.
- Project went exceedingly well.
- Very good input from the GC/CM RE: Cost, Schedule and Constructability.

Subcontractor

- Unreasonable and inflexible schedule drove cost increases. Lack of GC/CM self-performing significant portions of the work themselves caused a disconnect between the GC/CM and the project schedule.
- Poor GC/CM performance. Withholds information, slow to respond to RFI's and change orders.
- For a Variety of reasons, the build-out was delayed 6 months with the completion date remaining unchanged. The compression created significant impacts given 250 electrical changes & 2500 RFI's
- The GC/CM process allowed the owner to change the design after bid without a significant cost impact.
- This evaluation form was way too complicated. You should have had a separate one for every participant in project. Keep 1 to 2 pages/ I got tired of reading items that did not pertain to my participation and stopped filling out the form.

1.2 GC/CM Comparison to DBB Project Performance Comments

Architect/Engineer

- Project proceed more smoothly with GC/CM leadership as agent for the Owner.
- Performance was accomplished with less conflict than in DBB.
- The GC/CM Contractor has only been "slightly" more of a partner in problem solving for design problems than with a DBB contract.
- This project could never have met the owner's schedule if it had been a traditional design-bid-build project. Because the contractor was onboard, early bid packages were issued to enable longlead items such as mech. equip. to be purchased early.

Contractor

- There was considerable savings on the project. We (GC/CM) did not perform any work, although we monitored performance & quality we could not set performance pace & quality with own crew.
- The GC/CM process provided the owner better control of the program components at a lower cost than a similar DBB.
- There is teamwork on this project with the owner, design team, GC/CM and subs working together. DBB projects typically end up with the owner & architect on one side and contractor and subs on the other. They don't work together.
- WSU had many bad DBB experiences and opted for GC/CM. It was a wise choice - project has been a resounding success.
- This project was completed on time, within budget, and without claims, which likely would not have happened under the traditional DBB process.

Owner

- Better construction documents (specs 7 drawings), no surprises and better team attitude on the side of the contractor.
- It is very difficult to separate cost 7 Schedule problems into those resulting from conditions at the time of project, and those resulting from GC/CM methods.
- Reduced claims by subs.
- GC/CM process has no vested ownership except \$, they sided with the subs on all disputed issues.
- Reduced claims by subs.
- To date, the most beneficial is in value engineering.
- The performance of the GC/CM on this project is far superior to that on any other DBB project with which I've been involved.
- Higher level of cooperation among team members. Changes made with less impact. Better quality.
- The Ocean/Fish Project deserves a 10 on safety. No lost-time accidents in 27 months of construction on a \$60 million construction contract.
- Staying in budget, maintaining schedule, meeting owner requirements are team goals.
- Can not compare.
- GC/CM cost management between design phases (estimates) yield better cost control of project.

Subcontractor

- GC/CM offers the subcontractor no control in comparison to DBB. Job stagnated due to multitude of RFI's/changes. GC/CM removes subcontractor from direct contact with the owner.
- What is DBB?

1.3 GC/CM Team Performance Comments

Architect/Engineer

- Team worked well together, felt project was very worthy of best effort.
- All parties worked together as a true team.
- True Contractor impacts aren't always shared early enough always to try to mitigate issues.
- Relationships have been good and positive for the most part. Avoidance / denial has been an issue with the owner from time to time.
- Owner's representative was too weak.
- Very collaborative / trusting.

Consultant

- The local earthwork, utilities & paving subcontractors offered more in the way of realizing project goals, suggesting win-win solutions to problems, and maintaining our confidence in construction quality.

Contractor

- Overall team performance was good. Architect was somewhat concerned about reduction in cost & the amount of savings relative to their fee.
- Overall performance of the team was outstanding with the exception of the mechanical engineer. Design errors delayed portions of the schedule and caused increased cost.
- Each party set aside their interests for the common good of the project. Communications was open and frank. Problems were not viewed as a single party problem but a project problem that we needed to rally together to solve.
- Team worked very well together.
- Bankruptcy of major subcontractor impacted cost/schedule.
- Qualified team members across the board. Respectful of counterpart roles/responsibilities.
- Without the GC/CM process this project would not have met the owner's goals.
- Qualified team members across the board

Owner

- Even though team worked well together the GC/CM did not track all issues through resolution.
- Partnering process was incomplete and virtually abandoned.
- Good performance.
- The project required the GC/CM Principles & Owner on site to solve major problems.
- Good job by all team members
- Biggest problem was lack of mechanical/electrical design coordination. Team responded well to field challenges & budget constraints.
- The team has worked extremely well together. Everyone is working together in the best interest of the project.
- This was an extremely difficult project. Very complex building, urban environment, connections to existing buildings, and hospital and residential neighbors. The team operated at a very high level of professionalism.
- The working relationship with Architect & Contractor were pretty good; certainly better than on a DBB.
- The team has been able to establish a relationship of open communication, which results in quick resolution of issues.
- Excellent.
- The entire team worked closely together to overcome many difficult issues.

- Team has worked exceptionally well so far. Expectations are high that team will work through problems as project progresses.

Subcontractor

- Overly aggressive design period and incomplete project programming prevented complete design prior to construction phase. This contributed to cost overruns.
- GC/CM and A/E were poor performers; slow to respond; avoided problem resolution.
- Performance suffered from magnitude of design deficiencies. GC/CM had limited on-site experience with several key personnel. Job tended to move on its' "mass" as opposed to positive schedule direction.

1.4 GC/CM Comparison to DBB Team Performance Comments

Architect/Engineer

- More openly cooperative as team.
- Old habits die-hard and the contractor is used to dealing with problem solving by throwing things back at the design and owner team.

Contractor

- There was a common ground by all entities, by working from the start of design through acceptance to be successful.
- The inclusion of incentive clauses provide strong motivation for all members of the team to perform at a higher level.
- Everyone works well together. Differences were resolved amicably.
- When issues come up, the team members would talk and resolve issues.

Owner

- Architect on this project was very collaborative, but equally so on a previous DBB project. The GC/CM took a role closer to the owner and resolved problems as they arose among the subcontractors.
- Owner & A/E worked hard to make the mechanism work & get its expected advantages. Contractor gave lip service & reverted to normal DBB contractor orientation.
- Less adversarial than DBB.
- LOC has had a poor experience with most direct award contractors.
- Less adversarial than DBB.
- All around more collaborative approach than I've seen before.
- The communication between team members is better on this project than any DBB I've worked on.
- The team dynamics would not have been established on DBB.
- Excellent.
- I expect a DBB project and GC/CM projects to have similar team performance.

Subcontractor

- Schedule suffers on GC/CM projects when GC/CM does not self perform significant portions such as concrete or steel.
- Communications suffered from "posturing" & limited contact with the owner.

1.5 Owner/Facility Management and Programming

Architect/Engineer

- GA's staff not very knowledgeable or helpful with GC/CM process.
- GC/CM was not selected until later project phase so did not participate in programming.
- The scope was defined during Programming and was always susceptible to "creep."

- GC/CM made a mistake during early cost studies - project cost grew with no scope changes.
- Early on the scope of the project changed several times due to program changes. However, by schematic design the scope was well defined. During the construction documents phase some items were changed to bring cost down.

Contractor

- Programming was established at the time of GC/CM involvement. Scope creep was minimal to keep budgets true & the GC/CM was at risk thus kept scope creep in check.
- On this project, the owner had a defined scope however the leasee kept changing and increasing the scope with no available time extension.
- Program additions were made midway through the project because funds came available from buy out savings of the project. The owner's management team did a good job throughout the process.
- Extremely complex renovation with many unknowns.
- Extremely complex renovation of many unknowns.

Owner

- I think GC/CM projects are more successful if the GC/CM will be hired as early as programming phase, no latter than schematic design for projects over 10 million dollars.
- The owner did not have enough project managers.
- We built the same building, which was previously built ALTCC, so this phase was defined for us previous to starting design. GC/CM review of design & schedule resulted in lower bids & efficient construction during the winter.
- Owner did not have appropriate representatives during schematics
- Scope was not clearly defined. Owner's staff (Line of Business) changed during middle of project.
- Scope change was a problem during DD's
- Not clear what budget & schedule would have happened with DBB method for project, given industry conditions.
- The GC/CM project manager was much more accessible than on a DBB. The project was shortened several months by the GC/CM. We got more value for the \$ spent.
- Program issues have been appropriately addressed.

Subcontractor

- What are RCW requirements?

1.6 Design

Architect/Engineer

- GC/CM selection occurred at end of DD Phase.
- Fee did not adequately compensate the design team for the preconstruction phase of the GC/CM process.

Contractor

- We were able to keep design errors & changes to an absolute minimum because we (GC/CM) had the opportunity to scrutinize documents throughout design. Not all design was timely, we pushed out design until documents were acceptable to be put out to bid.
- The owner saved design fee costs by using plans / design from another project. This had a negative affect on the design team's involvement during construction and their attitude. Responsibility for resolving design obstacles was shifted to the contractor.
- Architect could not meet any design delivery dates. Even with the late delivery of the documents, we are on track for an early completion date.
- Very few RFIs and change orders - especially for such a complicated building.
- Our belief is that on this project the GC/CM delivery offers a more complete approach to the work.

- Our belief is that on this project the GC/CM delivery offers a more complete approach to the work.

Owner

- Better relationship between A/E & GC/CM.
- The Architect's performance was very good, as it has been on previous DBB projects. Improved quality of bid documents was a result of GC/CM review, and the A/E working with the GC/CM to incorporate those comments.
- GC/CM review of design in preconstruction phase significantly impacted design changes & schedule. Local jurisdiction also had impact on design & permitting.
- No benefit from GC/CM in Pre-Con Phases
- Very good Architect & Engineers on all projects since 1986. Some minor problems with sub-engineers.
- Still in MACC Negotiations, but cost reductions through value engineering were found in the construction of emergency generators, overhead lighting installation, reduce the number of cooling zones.
- Still in MACC Negotiations, but cost reductions through value engineering were found in the construction of emergency generators, overhead lighting installation, reduce the number of cooling zones.
- To control cost, schedule and construction process.
- Although the Design Professionals were apprehensive about adding another party (the GC/CM) into the design process, they have worked well with the team.
- The inclusion of the GC/CM was a major asset to the design process...Improving the value compared to the cost, improved constructability of the design, kept the design process on schedule, kept the project on budget.
- The inclusion of the GC/CM provided valuable construction expertise, aided with team building, etc.
- A/E support during the construction phase was very good, except for mechanical. Problems with Architect's dimensioning, however, it was resolved with potentially far less impact due to GC/CM relationship. Subcontractors still in lump sum bid relationship
- Our Team (AE, Consultants, Owner, GC/CM) met weekly to review and define documents. Comments were issued and incorporated in as appropriate.
- GC/CM & DBB should be similar.

Subcontractor

- These responses are driven by inappropriate design time provided by the Owner rather than at the design consultants.

1.7 GC/CM Selection Process

Architect/Engineer

- Project was first University of Washington GC/CM Project.
- Very well run and thorough selection process that did result in the most qualified contractor being selected for this work.

Contractor

- The GC/CM selection process allows the public agency to select the contractor best qualified to manage the project instead of having to rely on the possible unknowns involved in the DBB process.
- Although we believe that we were the best-qualified GC/CM, the potential for less qualified entities still exists, based on the final competitive bid phase & the ability to low bid the project to capture the allowable points.
- This project was completed on time, within budget, and without claims that likely would not have happened under the traditional DBB process.
- Although we believe that we were the best qualified GC/CM, the potential for less qualified entities still exists, Based on the final competitive bid phase & the ability to low bid the project to capture the most allowable points.

Owner

- Do not include location as criteria in the selection process.
- The selection process is fair, but it is possible for a big company to produce an interview team that is very convincing. Since the subcontractors are bid out using the public works process, this is equally fair to the local contracting community as DBB.
- GC/CM selection was made prior to 1997 revisions to the RCW.
- Using new RCW. This project used 1997 RCW.
- Newer version of law allows more quantifiable elements be considered in selection, and that is very good.
- My experience tells me that unless the state has a person with a vested interest we will not get the project service.
- The GC/CM process puts the team's energy into finding collaborative solutions - not adversarial positions. The design documents are better and gives more value for the dollar.
- There is less arguing over minor issues. More creativity. Quality & cost are better.
- The process was fair, open & above board.
- This process attracts contractors capable of managing the project. This benefits the project risk of a contractor not able to perform.
- Some questions RE: General conditions vs. reimbursable cost due to inadequate project description - inherent with the GC/CM selection at conceptual level design. GC/CM's want to push Gen. Cond. Cost into reinb. Cost category or to assign to subcontractors.

Subcontractor

- GC/CM selection based on price.
- Without more buy in by the GC/CM (more labor risk) the process will continue to be flawed
- Job was estimated / VE'd several times then put out to bid. The original intent of the negotiated build-out became lost for the sake for a project budget that never appeared too real.

1.8 MACC Negotiations

Architect/Engineer

- Uncertain as to detail of question 7.10, but generally project cost met reasonable expectations in constructing a campus of renovated 100-year old buildings.
- Additional difficulties arose from doing this work during a time of significant construction escalation and a very tight market in many trades.
- A/E was shut out of MACC negotiation process for portions. Owner was secretive in negotiating MACC with GC/CM.
- The final negotiated MACC was more than estimated amount at the RFP phase. The GC/CM was not selected for this project until construction documents phase.
- MACC negotiations / agreement would be better done at the end of DD phase, because documents are much more defined than SD.

Consultant

- WSU's Project Manager & the GC/CM conducted well-orchestrated negotiations sessions. The project design was thoroughly investigated during meeting with the owner, GC/CM and design team. The GC/CM's MACC calculations were made available for review.
- MACC negotiations were finalized during the design team's construction documents phase. The GC/CM had much more definitive information than SD plans during negotiation.

Contractor

- The GC/CM contractor provided a significant amount of detailed cost back-up including several breakdowns of the MACC estimate, and a complete, detailed accounting of the "scope creep" items. The actual MACC negotiations took one day.
- A MACC could never be established as a firm number on this project because of continual change.

- Should continue to refine & allow for incentives based on complexity & risk.
- MACC negotiations began at the completion of DD.
- Allow for incentives based on complexity and risk.

Owner

- Always have the A/E estimate available for checks & balances.
- First GC/CM selected was terminated because MACC negotiations failed (the GC/CM went further from the owners allowable number.) Second GC/CM negotiations were successful.
- It is important to have a strong estimating team under the A/E, as well as the GC/CM, to avoid setting the MACC too high. The GC/CM is motivated to estimate high to avoid risk, and the only tool the owner has to control this is the A/E's estimator.
- It is a good idea to do the separate estimates in the same format so they can be compared easily.
- GC/CM brought on at DD phase due to owner's lack of knowledge of program at schematic phase.
- RFP estimate was grossly understated.
- MACC negotiated just prior to bid of each phase of work. This is a bad system and I recommend MACC be finalized before any construction begins.
- As the Owner's Rep. I had very little input in this phase of the projects.
- A MACC was established by the team in the DD phase & maintained throughout the balance of the design phase. The team developed a contingency plan to insure the MACC was achieved. This made the MACC negotiations go smoothly.
- MACC negotiations were conducted after design development.
- The GC/CM amount was about 6% above the MACC due to unforeseen construction cost escalation in Seattle market. At the time of bidding, construction escalation was running at > 10%. State C-100 allowed 3%. Cost escalation was adequately covered within proj
- RFP was \$20,000,000. The negotiated MACC was \$21,650,000 and after Subcontractor buyout was reduced to \$20,273,988.
- Due to schedule constraints, GC/CM MACC negotiation process was best viable approach.

1.9 Preconstruction Services

Architect/Engineer

- GC/CM participation was important component of project success.
- Very successful preconstruction process.
- The contractor could have been more timely in providing specific requirements during the preconstruction phase. The GC/CM contractor did not join the team until the construction document phase.

Consultant

- Reductions in project schedule were due to reductions in the design schedule. The GC/CM staff during preconstruction services was highly experienced.

Contractor

- Project is currently under construction.
- Current status of the project shows that the GC/CM contractor's involvement in preconstruction process has improved the overall const. phase in the areas of the project design knowledge, site logistic, subcontractor coordination, schedule & cost control.
- The project benefited from a successful preconstruction process.

Owner

- I think pre-construction process is more successful if the GC/CM's project manager, cost estimator and project superintendent will attend meetings and VE's.
- The GC/CM committed the time & effort required during design to save the owner money & reduce their own risk. They were also motivated by an incentive.
- GC/CM consistently failed to provide deliverables as required by contract.

- No constructability & interdisciplinary coordination & deliverable was provided. GC/CM felt that they provided verbal input.
- On LCC 400 Bed Project the GC/CM was brought on board well after the planning stages. There were contract negotiation disputes. The GC/CM never did catch up & abandoned the project before punch list * warranty work was complete.
- GC/CM took over 6 months for bidding all packages and critical packages were rebid due to heated market that delayed the schedule. The GC/CM should have bid packages earlier to avoid delays and use of TCM's for buyout.
- Refer to comments under 5.0 Design Phase. The GC/CM was a very valuable team member during this phase of the project.
- GC/CM made positive contributions during preconstruction and met expectations. GC/CM had difficulty delivering VE in mechanical work.
- The team met bi-weekly during preconstruction, discussing the above mentioned, with many side meetings. The GC/CM preconstruction services were of great value to the project.
- For this project, contractor did not have sufficient staff to perform all aspects of preconstruction.
- Very beneficial to project.
- Except for providing an initial plan, subcontract bid & work package process went very well.

1.10 Project Management

Architect/Engineer

- GC/CM was not allowed to self-perform work efforts such as site housekeeping. (Law subsequently changed to allow.)
- There were no contingency funds.
- We had no formal partnering sessions on this project.

Contractor

- Did not provide any self-evaluation here. Please note that on this project through & because of design assistance & constructability reviews about 1% of project cost was out of contingency. We were able to get documents tight.
- The GC/CM remained flexible and innovative in dealing with difficulties and changes that arose throughout the project.
- Partial assessment based upon completeness of project.

Owner

- Even though it was the first GC/CM project of the GC/CM Project Manager, he successfully managed the project because of the good process.
- The GC/CM protected the project schedule & budget throughout the project.
- GC/CM focused on managing cost only to fulfill the self-performed work objectives.
- The GC/CM started on the project late & close out before completion. The project manager started out strong, had an extended illness, was obviously short staffed.
- Refer to comments under 5.0 Design Phase. The GC/CM's coordination & early knowledge of the details of the project helped minimize project risks.
- Reimbursable poorly forecasted/managed. Test engineering need to be taken over by owner. Systems pre-testing late. GC/CM resolved major schedule risk due to major sub bankruptcy.
- The GC/CM has been available and pro-active in their project management responsibilities.
- See comments in 9.0. mech. sub problems with GC/CM supervising mech. subcontractor. Problem with GC/CM supervising storefront/window wall subcontractor.

1.11 Subcontractor Workpackages

Architect/Engineer

- Law at time of project precluded any self performance (except in extraordinary circumstances.)
- Most subs were very high quality.

Contractor

- Subcontracting phase went very smoothly and without major problems.
- The GC/CM contractor developed a detailed subcontracting plan and followed it in the execution of the bid package bidding process including proper advertisement with full disclosure when competing.
- Public bid openings witnessed by a representative of the Owner and fair and ethical evaluations of the bids for award.
- We spent many hours evaluating project to determine the appropriate number of packages. This was important so to provide the best value & Competitiveness in the bidding process.
- Contractors bidding to GC/CM could easily understand their scope & get a clear understanding of where their work started & stopped. This helped eliminate overlap of costs & assumption allowance in bids. The GC/CM here did not self perform any work.
- The GC/CM did not self perform any work on the project. Very few issues arose due to unclear or inadequate definition or coordination of bid packages.
- Division 0 of the specifications authored & implemented by the GC/CM, as well as the subcontractor agreement form, did an excellent job of defining the work and plugging document holes commonly used by contractors.
- Subcontracting not as open in GC/CM because subs have to conform to bid requirements e.g. on time, on form, no exclusions etc.
- MWBE VERY difficulty to manage effectively when bidding.

Owner

- GC/CM knowledge of local bidding climate and how typical subcontractors structure their work helped keep the bids low & attracted more bidders.
- Self-performance bidding resulted in fewer contractors bidding the trade contracts.
- Recommend fewer sub packages, rather than more. Our number of packages was driven by phasing.
- GC/CM did not obtain bids on some bid pacs due to overheated market. TCM's were utilized to buyout critical bid pacs due to schedule.
- The subcontractor bid package were extremely well managed and tailored to the standard practice of the trades in this area. The packages were extremely clear. All of this is reflected in the extremely good bids for the packages.
- This also exposes the bids of the subcontractors greatly reducing the possibility of bid shopping.
- Award of sub packages should not be governed by overall impact on bottom line MACC, not on a bid package line by line comparison with MACC.
- The subcontractor plan provided by the GC/CM was packaged to attract contractors to bid on the work. All packages but 2 had 3 or more bidders. The GC/CM bid on 4 packages to self-perform. They were low bidder in 3.

Subcontractor

- RCW needs to be expanded to allow more work to be self-performed by GC/CM. Subcontractors are treated more fairly & more ethically under the GC/CM process since "Bid Shopping" is much less prevalent
- Self-performed work should be done by that company & not "subbed out."

1.12 Construction

Architect/Engineer

- Project met all expectations.
- "Claims" not unusual for project that includes renovating six 100-year old buildings and one new one.
- Contractor was too reluctant to consult with and communicate with their subcontractor at certain times. The general contractor's staff was at times, overwhelmed to conduct pre-construction meeting and they haven't occurred always as needed.

Contractor

- Did not provide any self evaluation above & we did not self perform any work as the GC/CM. Overall though the coordination of packages went very well. There were some change orders at the owner's request but contingency use was minimal.
- We would have liked to done some of the work; this would allow for more direct schedule & quality control by allowing us to set the work pace & quality standards as applied directly in the field.
- From the start of project to end scope understanding & completeness was top priority. Preparatory meetings were held with each trade contractor. This allowed for better management of work & quality. Items that did come up were quickly dealt with.
- The overall project ran smoothly, was well coordinated, and difficulties that arose during construction were handled quickly and to the satisfaction of all concerned parties.
- Unique problems arose concerning erosion control, propane fuel system upgrades and HVAC conflicts in the attic spaces. The GC/CM took the lead in all of these issues to resolve them with as little impact to cost & schedule.
- The project closed out exceptionally quickly. Final change orders & invoices were processed much more quickly than a typical project.
- Again good success thus far as based on partial work completed.

Owner

- On this project the Architect & Owner assumed or insured most of the work was completed.
- To date the GC/CM process has worked extremely well on this project, exceeding all of the expectations. It has fostered teamwork, coordination, & communications. The project budget & schedule have been closely monitored & maintained.
- The quality of construction to this point in time has been very good. The "value for the dollar" is high. If all GC/CM projects were this successful, I would recommend using only the GC/CM process for future projects.
- Weekly construction meeting addressed new issues, old issues, and schedule updates. The team would schedule future meeting if appropriate to resolve issues. The superintendent updated the 3 week look ahead weekly and at milestones in the project did a con

Subcontractor

- GC/CM had poor coordination with subs. Schedules were accelerated for GC/CM benefit and sometimes resulted in subs working in unsafe conditions to meet GC/CM schedules.

1.13 Commissioning/Startup

Contractor

- The GC/CM did not actually do the training we did coordinate the activities.
- The commissioning & start up was extensive. The GC/CM worked closely with the commissioning contractor, mechanical contractor & owner to expedite the work and resolve problems.

Owner

- Simplex behind on software development of security.
- As stated before the GC/CM was a late player in the process, there was no training.
- Very difficult start up of electronics work due to the complicated design.
- Commissioning is being done through out the project, because it's phased with wings finished at different times. To date coordination of the commissioning has been successful.
- DBB project should be the same as GC/CM.

1.14 Acceptance & Closeout

Owner

- Changes related to showers and fire alarms were design issues.
- O&M manuals took several months. No as-builts were ever submitted by the GC/CM. the Owner did all punch lists.
- Project is not complete until 11/01. Punchlist for the completed wings have been completed in a timely manner.

2. GC/CM Competitor Survey Comments

- This selection process was still based on a low fee proposal as opposed to including qualifications and interview as part of the selection process. The current law and selection process is much better.
- The owner selected an out-of-region contractor, who has performed poorly and jeopardized the GC/CM process for this owner.
- The delivery method is proven. Your process of applying this method restricts you from even greater value. Your rigid RFP (I.e. responses must follow the order...& limited to 25 pages") limits creativity & forces us back into the box.
- You're more concerned about past similar experience than the best team & the best ideas.
- Selection based on lump sum fee & GC's bad process. Forces GC/CM to "skinny" down commitment to project in order to save cost and remain competitive.
- Utilization of point based system is much better than a lump sum bids for fee and GC's as the method of selection.
- GC/CM submitted a very low fee/GC proposal, which moved them from last to 1st in the ranking and got them the job!
- GC/CM submitted a very low fee/GC proposal, which moved them from 4th to 1st and got them the job!

3. Subcontractor Competitor Survey Comments

- The drawings were so convoluted one could not tell what we were bidding for and what was by others. On top of State General Conditions GC/CM have many more requirements that just make it harder to comply. They would like to do all the work themselves.
- Project was listed and prequalify for 10 million. Project was in fact less than 5 million.
- PTI did not prequalify because of technically (No shop drawing sample with proposal) we were later told they had too many applicants.
- The steel package was not broken down as a normal job in the area. There was no required criteria for evaluation besides low price.
- The steel package was not broken down as a normal job in the area. There was no required criteria for evaluation besides low price.
- It appears only large companies can qualify to do 5 million or more size jobs.
- Project was bid with no solicitation process. Only contractors that qualified for Phase I were allowed to bid on Phase II

- Prequalifications was largely based on sales volume and having performed much larger projects than this project. Eliminated free competition to small & mid size contractors who have had proven success in projects of this magnitude.

4. GC/CM Agency Project Evaluation Survey Comments

4.1 Schedule

Schedule Improvements

- The GC/CM was involved with the Owner in making sure design was on time due to limited preconstruction time & fee.
- The GC/CM administered the project schedule from preconstruction to acceptance and he made sure subcontractors were implementing the project schedule.
- Allowed effective phasing of work, such as metal building shells and foundation work could be started prior to winter & interior work could be bid when design was completed. Overall schedule was compressed.
- The GC/CM worked with the A/E to design the structure components for efficient const. Also, the civil package was specific about temporary storm water & erosion control & gravel access around the building for heavy equipment, which expedited winter work.
- Allowed for good phasing implementation. Had a defined process if bid exceeded MACC & method to resolve. So, VE effort & redesign was smoother.
- GC/CM performed very well mitigating Lab Casework bankruptcy delay. 2. GC/CM process worked well w/coordination of exc/shoring package w/building construction package.
- On time for move in after VE effort at original 12/15/96 bid due to sharp up tick in market.
- This can only take place with early GC/CM involvement & agreement on the scope of the MACC.
- No significant difference was noticed between GC/CM schedule performance and traditional lump sum.
- MACC negotiated for each phase just prior to bidding that phase.
- Initial cost estimates during design required redesign. Decision made to phase construction. Failure of timely performance by one major subcontractor.
- Not sure. GC/CM allowed phasing, which helped with redesign delay, but subcontractor's schedule failure may have been contributed to by GC/CM structure.
- Time was extended for weather and late delivery impacts.
- Allowed Owner to add scope for new bid packages within original schedule. These bid packages were initially thought to be outside the MACC, but were designed and bid after bids were received for original scope.

Schedule Performance

- Delays due to: 1. Permit Delay-City of Seattle 2. Lab. Casework Supplier Bankruptcy -Contractor 3. CofO Inspection Delay-City of Seattle
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- Time was extended for weather and late delivery impacts.
- Allowed Owner to add scope for new bid packages within original schedule. These bid packages were initially thought to be outside the MACC, but were designed and bid after bids were received for original scope.
- Project not complete.
- Currently 47 days behind schedule. GC/CM plans to make up time lost before completion date.
- Enabled acceleration at minimal cost.
- GC/CM was able to negotiate with subcontractor to replace electronics equipment with different manufacturer to allow project to be completed. A general contractor would not have been as cooperative as the GC/CM.
- This was a very difficult project to match touch screen electronic controls and moving security cameras.

4.2 Cost

Budget Improvements

- Through value engineering and constructability reviews during design.
- GC/CM input of best construction methods during design phase.
- Incentives are effective if established early. Saving is in design. GC/CM knowledge of construction practices was incorporated into the design. Choice of material & details took advantage. If lower cost w/o compromising the quality of the final product.
- Owner had the opportunity to decide on options, with cost estimates in front of us, provided by A/E & GC/CM.
- Buyout savings used to fund additional scope.
- Through VE and real constructability reviews. GC/CM input re construction methods during design phase.
- Difficult time period for bidding the project. GC/CM allowed smaller firms to bid when the market was overheated in the area.
- Enabled subs to bid work under GC/CM. When obtaining general contractors would have been difficult in prison condition.

Cost Incentives

- Based on the GC/CM's innovative construction mgt. skills and cost savings.
- At the end of the project, combine the GC/CM's contingency and Owner's contingency, then split 50/50.
- GC/CM to receive 25% of savings from the MACC contingency at end of project.
- Sharing GC/CM contingency 50/50 for successful completion within planned completion date.
- Buyout savings used to fund additional scope.
- Good tracking of costs.
- \$30,000 + 2.5%.
- GC/CM proposed 60% of GC/CM contingency (including non-bid GCs and allowances for completion by 1/1/01. Not accepted by Owner.
- \$1.1 million additional funds required for unforeseen conditions. 24 showers were demolished and replaced. Yard improvements were needed for close custody. Inmate construction was changed to subcontractor to accelerate schedule.
- Sharing GC/CM contingency 50/50 at substantial completion.
- Incentive was 100% at or before date of substantial completion and reduced to zero 30 days late.

Cost Performance

- Minimal change orders due to early involvement of GC/CM PM and Superintendent. With their expertise, were able to identify potential changes, code issues and long lead delivery of construction material.
- A/E contract must be written to allow cooperation with GC/CM. Be prepared to pay for additional time required by A/E for analyzing options. (Only analyze those with obvious saving potentials.)
- We relied too much on GC/CM estimating. Those estimates were too much "construction bid" type and not as effective prior to completion of all bid documents.
- Good tracking of costs.
- Minimal change orders due to early involvement of GC/CM project manager and superintendent. With their expertise, were able to identify early on potential scope changes, code issues, and alternative construction materials and best method of construction.

Project Completed Within Budget

- Scope/operational changes, tradecontractor and GC/CM significantly increased project cost.
- Project caught in massive cost escalation of industry in '97-'98. GC/CM estimating had significant failures. Phasing magnified costs.
- \$1.1 million additional funds required for unforeseen conditions. 24 showers were demolished and replaced. Yard improvements were needed for close custody. Inmate construction was changed to subcontractor to accelerate schedule.

4.3 Change

Change Orders

- Clear drawings & specs due to careful review by GC/CM. This only happens if the GC/CM understands the benefit of reducing their risk & invest the time in review during design.
- Reasonable amount. See Attached
- GC/CM was good negotiator with subs.
- Unknown.
- Project not complete.
- The GC/CM did the real constructability reviews and shared his expertise in resolving and identifying potential scope changes due to design errors and omissions, unforeseen conditions, and code issues.
- Many change orders due to lack of details on drawings.

RFI's

- GC/CM reduced subcontractors' use of excessive RFIs to make claims for poor documents.
- Unknown.
- Project not complete.
- The GC/CM did the real constructability reviews and shared his expertise in resolving and identifying potential scope changes due to design errors and omissions, unforeseen conditions, and code issues.
- GC/CM uses RFI process for every question or direction from Owner and A/E. Owner has sent instructions that RFIs cannot change contract cost or time.
- Reduced subcontractor RFIs to make claims for poor documents.

4.4 GC/CM Process Evaluation

Why was the GC/CM method used?

- The GC/CM method allows A/E, GC/CM & Owner to work in collaboration to provide the best possible design and to complete the project scope within schedule & budget.
- Critically short timeline for a very complex project to get done.
- Arsenic contaminated soils, maintain existing Denny Youth Ctr. in operation.
- Complicated, multiphase project with the need to maintain operations of existing facility.

- Coordination of difficult site, partly in use during construction. Desire to minimize project contention. Desire to hold budget and achieve schedule. Experimental first use of GC/CM by Owner.
- To prevent claims that were prevalent in Owner's projects in '91-'93 biennium.
- The GC/CM method allows the A/E, GC/CM, and Owner to work together to provide the best possible design and complete the project scope within schedule and budget.
- To eliminate claims and complete project within tight schedule.
- Very difficult scope and schedule inside secured perimeter of prison. Higher expertise needed to manage project than typical general contractor.

Comments on the process

- The owner must understand how to use the process to their advantage. The GC/CM must also understand, or they will not invest time on the project during the design period & there will be no savings.

Disputes

- Cost incentives. Noted in RFQ as a question only. Not included with RFP per RCW. Interpreted by GC/CM to be included. Resolved 1 time DRB.
- Reimbursable poorly managed - CO's issued per contract. 2. Schedule delays - CO's issued per contract
- Contract incorporated Dispute Resolution Board. After extensive negotiation failed to resolve specific items of dispute, they were referred to the DRB for resolution. Process is ongoing.
- Schedule Performance
- Dispute resolution included three levels of discussion between the Owner and GC/CM. Should all three levels fail to resolve a dispute, a 3-member Dispute Review Board (DRB) was used to resolve it.

Claims

- Two years after substantial completion, the underground heating water & chilled water lines failed and owner replaced with concrete utility corridor. Mediation was used for settlement.
- Fee increase due to increased of value - Rejected not valid. 2. Dimensioning - Settled for \$43,000. 3. Schedule delay- Settled for \$800,000. 4. Mechanical Issues - Will be settled between \$25,000 to \$40,000.
- Contractor claimed impact due to increased project scope, multitude of changes, weather, and staffing overruns. Claim settled between 3rd (top) level of Owner & GC/CM negotiations.
- DRB hearing and finding is accepted by both parties.
- There will be claims.

Cost savings proposed by GC/CM

- See outline specifications & value engineering attachments to contract.
- Revisions to HVAC systems. Numerous minor items ranging from \$2000 to \$30,000.
- Used thickened edge footings for one building. \$100,000 savings did not materialize. Went back to separate footings for other buildings.
- Unknown.
- Eliminating more expensive structural details and substituting less expensive details.
- Not type of scope for VE savings.

Design Improvements

- Details & sequencing were reviewed by GC/CM for more efficient construction.
- Kept scope in tact so project could be built.
- Not clear whether resulting good design was informed much by GC/CM process. Phasing confusion may have muddled the quality of final bid documents.
- Unknown.
- Unknown at this time.

4.5 Subcontractor Workpackage

Buyout Savings

- Buyout savings accrued to contingency within MACC which would have been split had it not been exhausted.

Subcontractor Protests

- Bid protest/complaint that low bidder did not have valid WA St. License - Settled in court.
- GC/CM could not self perform under 1994 RCW.
- Several potential bidders declined the opportunity to bid against the GC/CM, stating that the GC/CM's superior knowledge made the bid "unfair."
- MWBE protest caused rebid of mechanical.
- MWBE issues and IBEW protest on electrical bid package.

Subcontractor Claims

- Miscalculation of a bid & UL rating requirement.
- Dirt work. Claim for \$250,000 settled for \$9,800 actual cost.
- There were several substantial disputes between subs and the GC/CM, some still ongoing. They are being handled internal to their contractual relationship, though we have one major suit against retainage.

Subcontractor Comments

- Lump sum public works bidding based on individual bid packages clumsy and inefficient. GC/CM needs more flexibility in selecting subs.
- Self-performance may have led to higher costs on self-performed work packages based on reluctance to bid against the GC/CM.
- GC/CM delayed bidding final bid packages and prevented Owner from taking buyout savings after 80% of work bid.

4.6 Quality

Quality Comments

- Roofs, boilers, heating systems. Lack of commissioning
- Include detailed QC program in GC/CM specs that can be enforced.
- Conflict of interest between GC/CM and self-performance elements resulted in a degradation of quality control.
- Poor responsiveness, T&S subcontractor, Test engineer.
- Concrete sub was very deficient. Even the best GC/CM has difficulty with a poor or non-performing sub. The qualitative selection process for the GC/CM should focus on the candidate firm's ability to manage such subs.
- Roofing was improperly installed. Insurance company for sub replaced roofs on 4 buildings.
- Project not complete.
- Very difficult project to install and commission: security electronics with touch screens operating moving cameras.

4.7 MWBE

MWBE Comments

- Overall percentage of GC/CM contract was met, however a subcontractor on one bid package did not meet the requirements.